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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

"ALL LABOUR IS SACRED."

VOLUME I.

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CASSELL PETTER, AND GALPIN
LA BELLE SAUVAGE YARD

PREFACE.

The completion of the First Volume of the Working Man affords us an opportunity of acknowledging the cordial co-operation and support with which our readers have seconded our earnest endeavours to establish a Journal having for its aim the realisation of the bright prospects so eloquently alluded to by Mr. Gladstone, when he said that "the nineteenth century is undoubtedly, in a new and peculiar sense, the century of the working man; it is the century which has seen his position raised, his circumstances improved, new means organised for his benefit, new prospects opened for the future; and he has before him a prospect which, as I trust, nothing can mar, of increased weight, increased consideration, increased usefulness, increased happiness, in the generations to come."

Our undertaking was, at the outset, surrounded with numerous difficulties. We had, in a great measure, to become our own pioneers, and to ascertain whether or not the time had arrived when the people of the United Kingdom were prepared to welcome the advent of a Journal intended to assist in the promotion of the intellectual, social, and industrial welfare of the various classes of workers, whether with the hand or the brain. Our programme was of the most comprehensive character, embracing, as it did, the whole range of subjects affecting the industrial community, and we have zealously attempted to carry it out, with what degree of success we leave the pages of the Working Man to testify.

We have made our readers familiar with the characteristics of some of the great Workshops of the World; told them of the leading Working Men's Industrial Exhibitions, Working Men's Recreations, and books for the Working Man's Library; informed them of the progress made by Working Men's Clubs, Co-operative Societies, and similar associations; besides furnishing much useful information respecting Emigration and the Labour Market in the Colonies. We have also devoted considerable space to the Working Man's Means of Education and Self-Improvement, the Working Man at Home, Unhealthy Trades and Occupations, the Investment of Savings, Provision for Sickness and Old Age, Wages, Trade Disputes, Strikes, Lock-outs, and other important topics. Art and Science have likewise found a place in our pages. The Art Workman has been both encouraged and instructed, while the Students of Chemistry and Mechanical Science have found much that was interesting and novel. In the department of Biography we have given portraits and illustrative memoirs of the more celebrated Men who have risen from the Ranks, as well as of those who have, by their example, adorned the station in which they remained.

These and many other features of the present volume of the Working Man all tend to show the wide range of subjects embraced by our programme.

In our next volume we shall aim at an even wider sphere of usefulness, by combining political topics with social and industrial questions, and thus rendering our Journal the true reflex of the British Working Man; aiming to be not only his favourite by the household hearth, his friend in the workshop, and his advocate in the social and political world, but the fearless and enlightened exponent of those glad and happy aspirations which bid him regard the present as the stepping-stone to the future, when the dream of labour shall be realised, and the pathway of the worker become less clouded and less beset with difficulty and care.

La Belle Sauvage Yard, London, June, 1866.

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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

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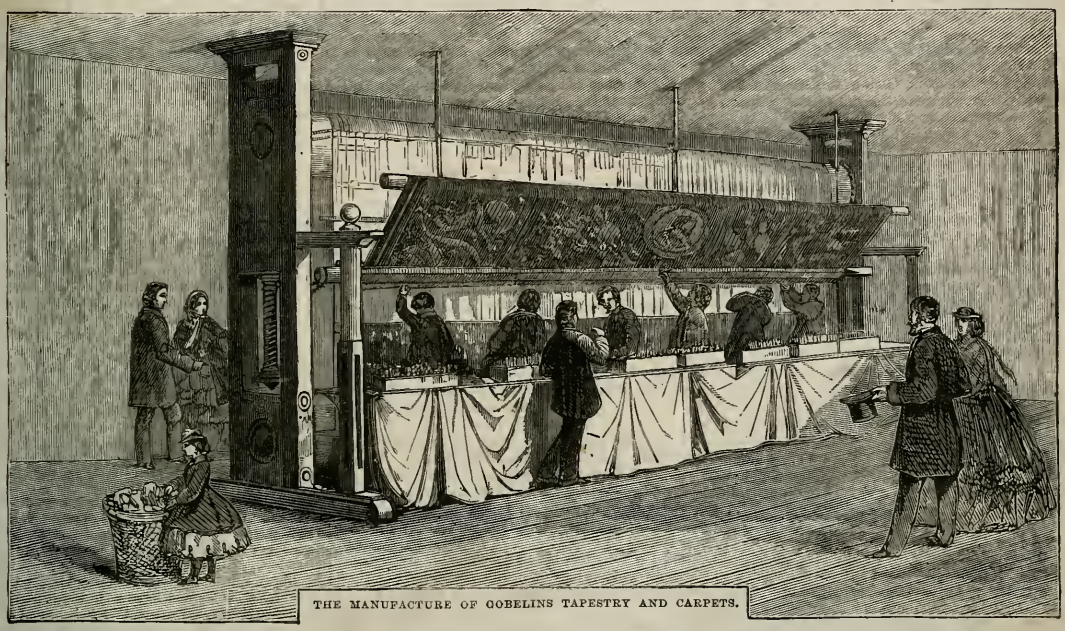
THE WORKSHOPS OF THE WORLD.



THE MANUFACTURE OF GOBELINS TAPESTRY AND CARPETS.

The Imperial Gobelins Factory.

THE Gobelins Factory at Paris holds the first rank among the workshops of the world, both on account of the magnificence of its productions, and the influence it has exercised on certain important branches of art-manufacture. In these particulars it is emulated by the Imperial Porcelain Factory at Sèvres.

The renown of the Gobelins factory is based on the production of tapestry of the highest artistic excellence: the manufacture in the loom, with silk and wool, of fac-simile copies of paintings by the most renowned artists of Europe. The degree of excellence, not to say perfection, to which this art manufacture has been carried, was well shown in the specimens exhibited at the Great Exhibition of 1851, which astonished and delighted all who took the pains to examine them.

The Gobelins tapestry is, in truth, a royal manufacture: it stands alone, unrivalled and unimitated. Its products have no market; money cannot buy them. They figure only as presents to crowned heads and favourite subjects, and, as presents, are unique.

The existence of the Gobelins dates from the middle of the seventeenth century. It bears the name of a family of dyers from Rheims, who established themselves on the banks of the Biévre. Jean Gobelin, the head of the family, acquired much wealth and land on the banks of that river, and bought letters of nobility.

When the Gobelins quitted their factory, they sold it to the Messrs. Cauceye, who, to the dyeing-works of their predecessors, added the weaving of tapestry, with the aid of Flemish workmen, directed by one Jans. Gluck, a Hollander, succeeded them. Lastly, Colbert acquired from one Leleu the building rightly called the Gobelins; while the Gluck family united with another family named Julienne, and they continued, in the adjacent buildings, a dyeing-works, which was still in existence at the beginning of the present century.

At the commencement of the reign of Louis Quatorze, France was dependent on the rest of Europe for its art-manufactures. Louis was a munificent prince, and lavish in his expenditure. He built palaces, which required to be royally furnished. He conceived the idea of establishing a model workshop for the benefit of the artisans of his kingdom, in which skilled labour should be guided by the highest talent in art, not with the view of rivalling or destroying private industry by disproportionate competition, but to stimulate and direct it in its labours. In proceeding to carry out this view he established the royal workshops at the Gobelins.

But it was not merely a tapestry-factory that could satisfy the monarch's wants: he made the Gobelins a vast workshop, where everything that constituted furniture was designed and executed. Two hundred and fifty artisans wove the rich hangings, for which the king's chief painter furnished the designs, and for which the renowned Jacques Kerkoven dyed the silks and wools. Workers in gold and other metals cast and chiselled chandeliers and candelabra, the designs of which harmonised with those of the hangings; while cabinet-makers, carvers, and gilders turned, carved, and gilded the wooden furniture. Florentine artists, directed by Ferdinand Meglioriní, collected marble, agate, and lazulite, to compose those precious mosaics adorned with birds, fruit, and flowers, upon the tables of the palaces built during the reign of Louis XIV., which excite admiration to the present day. Not a bar to a window or a lock to a door but was a masterpiece of execution, from the designs furnished by the universal artist, Lebrun, who seemed to multiply himself, in order to satisfy all the monarch's demands upon his talent. What activity and harmony prevailed in the Hotel des Gobelins! Never before nor since has the world seen such a workshop.

Louis was liberal to those who pleased him, and the artisans of the Gobelins had no reason to complain that their labours were ill-requited.

Lebrun was director of the Gobelins from 1663 to 1690, the date of his decease. This was the most prosperous era the royal factory ever enjoyed. Several of this artist's best pictures, besides those of contemporary painters, were copied in tapestry. At his death Miguard was appointed his successor as painter to the king, and director of the Gobelins. The first years of his rule were fruitful in important works. A drawing-school was established in connection with the factory. But the reverses that befell the king during the latter part of his reign, compelled him to husband all his resources for the defence of his country. He was driven to the painful necessity of dismissing the greater portion of the workmen whom he had been at so much trouble and expense to get together and instruct. But the territory of France was invaded by a foreign foe, and art and luxury were as nothing in the presence of the dangers of the country. The marvels of art created by the goldsmith De Launy, were doomed to the melting-pots of the Mint, while the youngest of the tapestry-weavers were compelled to serve in the ranks of the army, and another portion, among the most skilful, was dismissed.

When peace was again restored, activity at the Gobelins was resumed; but from this date the Royal Furniture Factory gradually lost its cha-

racter, and eventually became only a factory for tapestry and carpets. The painters, sculptors, goldsmiths, and mosaic-workers disappeared one by one. No longer a school of arts, as it was under the directorship of Lebrun, its operations were at length limited to copying pictures, some of them being specially designed to serve as patterns for tapestry, while others were chosen for the sake of their subjects. When completed, the king gave them to other monarchs, or to those of his subjects to whom he wished to testify his satisfaction and esteem. At times, he made presents of those whose subjects were suitable to the clergy, to adorn their churches. There are tapestries of "Esther," and of "Jason and Medea," at Windsor Castle; and the Duke of Northumberland, with other wealthy English connoisseurs, were graciously permitted by the French monarch to acquire possession of some of these magnificent and rare products of the royal looms.

During the reigns succeeding that of Louis XIV. the tapestry looms of the Gobelins continued steadily at work, until the breaking out of the political struggles at the end of the last century threatened even the very existence of these admirable creations. The Gobelins, the Savonnérie, and Sèvres were no longer regarded as establishments of public utility, founded to oppose the importation of foreign products, and aid national industry deprived of models and examples; which not only prevented money leaving the country, but also attracted specie from rival nations. The republicans saw in them only establishments of useless luxury, the relations of which to external commerce they could not comprehend. On the 17th August, 1793, Marat wrote these lines in the *Ami du Peuple*:—"They have no idea abroad of fine art establishments, or rather of manufactories at the expense of the State. The honour of this invention belongs to France. Such are, among others, the manufactories of Sèvres and Gobelins. The first costs the public more than 200,000 francs annually, for a few porcelain services which the king makes presents to ambassadors: the other costs 100,000 francs annually, we do not well know for what, unless it be to enrich intriguants and rogues."

These were perilous times for the arts when they dared to lay violent hands on the masterpieces of past times, under the pretext that they contained emblems recalling the old form of government. One director of the Gobelins asked of the Home Minister, under whose prerogative were placed the former royal manufactures, permission to publicly burn, with great ceremony, some admirable pieces of tapestry representing *fleurs de lis*, and the former arms and ciphers of France. To the destroyers from zeal succeeded methodical destroyers, and a jury of *arts* was nominated to sit in judgment on works in progress, and condemn those that were offensive to the eyes of a republican.

The Gobelins factory comprises a dye-house, a chemical laboratory, schools of drawing and tapestry, a repairing workshop, and exhibition galleries, and the rooms in which the tapestries and Savonnérie carpets are made. The works of this *atelier* have a special character, which demands a new apprenticeship on the part of the dyers who have learned their art elsewhere. From 1804 to 1816, when the directorship of dyeing was temporarily suppressed, a practical school for the art of dyeing existed at the Gobelins. In 1824, M. Chevreul—to whom the arts are so deeply indebted for his researches upon colour—assumed the direction of this branch of the Gobelins, and from that date its usefulness has gone on steadily increasing, until the art of dyeing has become as profoundly studied as any branch of applied chemistry. Every year the director delivers a course of lectures upon the laws of colour, and their applications to the arts.

The two schools of drawing and tapestry are under the direction of a professor of drawing, assisted by a retired tapestry-weaver in the capacity of overlooker. Out-door pupils, in considerable numbers, are admitted to the drawing-school, which includes elementary drawing, the study of the antique, and of the living model.

It is scarcely possible to estimate the advantages conferred by this establishment on the important art of dyeing, an art that, in common with many others dependent on chemical principles, has made such immense progress during the present century, but which is now undergoing so complete a revolution as to render past experience nugatory.

All that we recognise as French art, which has so strongly influenced the taste and fashion of European and American communities, doubtless owes its origin to the first establishment of the Gobelins by Louis XIV.

Glasgow Industrial Exhibition.

GLASGOW is full of noble streets; yet it has no finer parallelogram of the commercial kind than its mile-long street from Cross to Anderson, composed of the ancient Trongate and Argyle Street. In the best part of Argyle Street is now opened the new Industrial Exhibition, thoroughly well arranged, and as attractive as any of which the public have heard. The interior of the building, with its three stories of galleries, presents a completeness and appropriateness of effect very pleasant to the eye. The works of art loaned to increase the allurements of the place, are worth several visits to see and study. Of the contents and quality of the articles that properly constitute the industrial portion of it, we must at another time speak.

The opening was more than usually ceremonial and characteristic of Scotland. All the members of Parliament and city magnates available were present. There were readings from the Scriptures, prayers, a song expressly written by Mr. Roy, and a procession over the Exhibition, headed by the Duke of Argyle, followed (we do not mean on foot, but in order of event) by speeches neither too long nor too many.

In the evening, in the City Hall, to accommodate the thousands who attended, his Grace the Duke of Argyle, delivered amid well-deserved applause, the inaugural address. The duke is popular in Glasgow, as indeed he is everywhere. Whatever his grace pleased to say in Glasgow would be sure to be applauded; but what he did say was so discriminating, so racy of the Scotch soil, and so appropriate, that the applause was due to the matter apart from the coronet. Whether the Duke of Argyle speaks as President of the British Association, at a Working Man's meeting, or at an Industrial Exhibition, he always makes himself master of his subject, however high, and is genial and attentive to it, however humble it may be. A short time ago, when his grace took the chair at Exeter Hall in the metropolis, at the Discussions of the Working Men's Club and Institute Union, he really watched the course of the debate with the integrity of a private gentleman, and reviewed, replied to, and summed up the remarks of the workmen present, speaking as one who had given actual attention to the subject only could have done.

In his inaugural address at Glasgow, he not only explained what the Exhibition was, but what such an Exhibition should be. His grace said—

Although I have had a comparatively cursory glance of the Exhibition, I can say that it contains a very much larger and fuller collection of objects of ingenuity, of beauty, and of art, than I for one was at all prepared to see on this occasion, and I rejoice specially to be assured that it is not merely an industrial exhibition opened for the benefit of the club connected with the working classes of Glasgow, but that it is *bonâ fide* an exhibition in which the greater part of the objects are contributed, and have been made, by working men. I am told that out of a total of 500 exhibitors, there are upwards of 400 who belong to the working classes. Now, gentlemen, I need hardly say that in some points of view it may be said that the whole Exhibition has come from the hands of working men, in the same sense that all that we have, and all that we enjoy, are the products of labour—the houses which shelter us, the raiment that covers us, the railways by which we travel, the ships which convey our commerce, almost all the objects, in short, of luxury or of art—all that dignifies and adorns our life, comes through the hands of working men. (Cheers.) But this is in somewhat a lower and more mechanical sense. Those objects which have been brought forward and made by the hands of working men in this Exhibition are theirs in a much higher sense than this, because they not merely come from the hands of working men, but they come from their heads also; theirs are not merely the hands that made them, but their minds have conceived and invented them; and every one of the objects that have been exhibited there to-day, combine both the work of the head and the heart, and they, therefore, in a higher sense than the objects I have named, belong to the working men, and have come from them.

After a very relevant and very readable historical sketch of the history of working-class progress, the inaugural speaker turned to city questions and country anecdotes. We quote a further passage:—

I rejoice to see that it is proposed to sweep away a great part of those habitations in Glasgow which are the dens necessarily of misery and vice, and to supply them by model lodging-houses for the superior class of artisans in the city. I have no doubt that a great part of the drunkenness often charged upon Glasgow comes from the persons who are lodged in those dens of wretchedness and vice, and also that the drunkenness of their habits has, to a great extent, arisen from the misery of the dwellings in which they are lodged. The sickness and fever rate in this district have been from 25 to 26 in the thousand per year—that is, in every thousand persons there are 25 to 26 laid up with fever every year; while, in the more healthy districts, the proportion of fever cases is less than 4 in the thousand. Fancy what an enormous difference in the health of a population—the difference between 4 and 25 or 26 in the thousand—simply owing to bad construction and defective ventilation of miserable dwellings. I don't know whether any gentleman present may be inclined to think that as one of the proprietors of houses in the country, I also have been neglecting my duty to the habitations of the poor. It is only of late years all of us have wakened up with regard to our duties in this matter. There are wretched habitations in the country, but still the more open they are, and the worse sheltered, the more free the supply of fresh air and fresh water. (Loud laughter and cheers.) I may illustrate what I have said about houses in the country by an anecdote of what happened to myself a few weeks ago. A poor woman came to complain to me very much of the condition of her house, which it appears that she or her husband—she was a widow—had placed in a spot of ground not very far above high tide, and occasionally when there was an unusually full tide the water invaded the house. The house, I may say, looking at it from the opposite arm of the sea, seemed a whitewashed and very comfortable cottage. But she came to me and said, "It's a very bad hoose." (Laughter.) "Well," I said, "my good woman, what's the matter with the 'hoose?' it looks to me a very fine 'hoose.'" "Oh," she said, "it's a vera fine hoose if I could keep the ocean oot." (Renewed laughter.) Now, at high tide, I have no doubt, it was a very uncomfortable "hoose;" but I would rather live in that "hoose," with the ocean coming into it, than in any of the wynds of Glasgow. The great agency capable of acting, and acting well, upon the conditions of labour, is the agency of individual thought and action. (Hear, hear.) The truth is, that this is the source, if we come to think of it, of all good in the world: after all, it is thought that rules the world, and it is generally the thoughts, the happy thoughts, the ingenious thoughts, the virtuous minds which give stimulus and impulse to the convictions of the community amongst which they live.

All this is gaily, nobly, and thoughtfully said, and no doubt will be read with profit and pleasure by the class for whose use these words are spoken.

Working Men's Clubs.

TO THE WORKING MEN OF THE UNITED KINGDOM.

THE noble words of Mr. Gladstone, quoted in the prospectus of this Journal, recognise a great truth, and in themselves remarkably confirm it. His must be a cold heart which does not warmly respond to the appeal, coming from all quarters, on behalf of the great industrial population of this country. An earnest desire pervades the wealthier classes to enable the hand-workers of the kingdom to enjoy a larger portion of the various blessings of that civilisation and progress which their toil so mightily promotes, to help them to enter more fully into that rich inheritance of literature, learning, science, and art, which has been accumulated by the genius and wisdom, the faithfulness and self-sacrifice of past and present generations.

The Working Men's Club and Institute Union was formed for the purpose of aiding in this great movement, by arousing the energies of working men, stimulating and helping them to help themselves by the formation of societies for procuring social enjoyment and intellectual improvement, as well as the means of bettering their pecuniary condition. Hitherto they have been entirely dependent upon the public-house as a place of meeting alike for business, amusement, and social intercourse, with very unsatisfactory results. And among all the signs of that brighter era which is now dawning, among all the aids for its realisation, we see none (of course, subordinate to the highest influences and agencies) more hopeful and more efficient than these working men's social clubs and institutes.

In a succeeding number of the WORKING MAN

we propose giving a brief sketch of the origin and nature of these societies. At present we confine ourselves to explaining to the members of our Union, and the public generally, that the proprietors of this Journal have offered to the Council of the Union a certain portion of their space, for communicating to the members and friends of working men's clubs, as well as to the public at large, information, advice, and intelligence respecting those institutions. The Council have accepted this offer, instead of continuing to issue their own periodical—*The Working Men's Club and Institute Magazine*—because they believe that this Journal will give them far greater facilities for communicating their views and information than they could obtain in any other way. They feel warm sympathy with its objects; they have confidence in the spirit and way in which those objects will be sought to be accomplished; and they believe that, by thus co-operating with the proprietors and editor of the WORKING MAN, they will be best carrying out the objects they have in view.

We propose, therefore, to make the WORKING MAN the principal organ of our Union, and we confidently, as well as earnestly, appeal to the members of working men's clubs and institutes, to the members and friends of our society, to all interested in the promotion of working men's clubs, and to all the subscribers to our late magazine, to accept and support this Journal. We ask it not merely for its own merits, considerable as we believe these will be, but specifically also as the principal organ of this important working men's club and institute movement in all parts of the kingdom.

On behalf of the Council of the Working Men's Club and Institute Union, HENRY SOLLY.

150, *Strand, W.C.*

[Mr. Solly's Address to Working Men will appear in our next number, to be followed by the History of the Origin and Growth of Working Men's Clubs.]

The Temperance Question.

IN ITS ECONOMIC ASPECTS.

SOME five-and-thirty years ago the Temperance question was a novelty to the busy multitude. Little was known in this country concerning any of its aspects. It is different now, yet not so different as to make it needless to call attention to some of its more practical and salient features. Our present observations will be limited to its economical phases; and we shall endeavour to strike the golden mean, equally removed from extravagant partisanship and prejudiced opposition. Nothing is eventually gained by exaggeration or undue depreciation. Assuming that the object of the inquirer is the attainment of truth upon this subject, his pursuit of it ought not to be unproductive; for the facts are not scanty, are not far to seek, and are not difficult to interpret. It is our business to set forth these facts in an intelligible form, and the candid reader's business will then be to found his own conclusions upon them.

That the Temperance question has economic aspects we must at the outset take for granted; and it will simplify our inquiry if we first of all consider these aspects as they relate to the individual; next, as they regard the family; and lastly, as they concern the nation—the body politic.

Economy, in its personal relations, is very much the same as the frugality so often mentioned and eulogised by our older writers. Negatively, it involves the avoidance of waste; and, positively, it includes a wise appropriation of one's resources. We are even accustomed to talk of "economising time;" but "economy" and "economical" are terms restricted to the careful husbanding of material means, and the judicious regulation of expenses. Economy might be described under the figure of a triangle, its three sides answering to intrinsic value, market cost, and pecuniary capacity. Economically viewed, every transaction is subject to three inquiries—What is a thing worth? What is its price? What can I spare? If it be worth nothing, or if it be high-priced considering its worth, or if it would cost more than I can afford, though the price does not exceed its worth—in each and all of these cases economy would not sanction its purchase.

The Temperance movement, as every one knows, aims to promote abstinence from alcoholic liquors of all sorts. The reasons assigned for this course are very various; but it is obvious that the economical question can be separately discussed without prejudicing the ultimate verdict. In applying to the purchase of intoxicating drinks our threefold economic test, we have to ascertain their value.

For ages they were popularly classed among articles of food, and were supposed to constitute a diet peculiarly nutritive and strengthening, necessary to health, and contributing to length of days. This estimate of their properties and effects has undergone a very extensive change. Liebig long ago admitted that the nutritive value of the best beer was insignificant; and a century earlier, the young American printer, whose subsequent contributions to social economy added new lustre to the name of Franklin, demonstrated the same truth to his fellow-journeymen, "who," to quote his own words, "wondered to see that the Water-American, as they called me, was stronger than themselves, who drank strong beer. . . I endeavoured to convince my companion at the press that the bodily strength afforded by beer could only be in proportion to the grain or flour of the barley dissolved in the water of which it was made; that there was more flour in a pennyworth of bread; and, therefore, that if he would eat that with a pint of water it would give him more strength than a quart of beer." Scientific analysis confirms this statement, for it shows that in 100 parts of beer the extract or solid matter is not quite equal to 4 parts, while the alcohol forms 5 parts, and the water 91 parts. An imperial gallon of Allsop's pale ale, containing 70,000 grains, showed, on analysis—of water, 63,370 grains; of alcohol, 3,540 grains; of solid matter, 3,090 grains—$\frac{1}{23}$rd part of the whole. So far as nutriment goes, then, it is evident that there can be no economy in paying 2s., or even 1s., for an amount of aliment in the form of beer, which can be obtained for 1d. in the form of bread. The utility of the alcohol contained in intoxicating liquors, by which they are rendered intoxicating, has been warmly contested. Liebig thought that, though not nutritious, alcohol was decomposed, and used inside the body for animal heat; but it was contended, at the time, that such fuel was very expensive, and, therefore, not economical; and more recent experiments have served to prove that alcohol is not decomposed at all, but ejected from the body in the same state as when consumed. It is also urged by Temperance advocates that pure alcohol being a poison, its dilution does not transform, though it modifies its effects; and that the habitual use, even moderately, of beverages containing it must, in the long run, be hurtful to the constitution. To admit this inference is, of course, to strengthen the economical argument against strong drinks, though a concession that strong drinks produce little or no benefit is all that that argument requires. Medical men of the highest eminence have asserted that health and longevity can be secured equally well, or better, without the use of these liquors; and all the ascertained facts in reference to the rate of sickness and mortality among abstainers serve to bear this *dictum* fully out.

It may be argued that bare utility is not what is expected or derived from the use of alcoholic beverages, and that the pleasure they impart is to be taken into account. This plea deserves to be considered (along with the counter-plea of abstainers as to their superior equanimity and general cheerfulness) in weighing the *collective* argument for and against the use of intoxicating drinks; but it is not relevant to the economical branch of the discussion.

The price of fermented and distilled liquors may be compared, on the one hand, with their intrinsic value, and, on the other hand, with the means of the consumer. What is not economical at any price, cannot be economical at the market price; but in calculating the comparative economy of purchases, attention must be paid to the class of articles and the kind of utility we are in quest of. Man is a creature having wants of a physical, mental, moral, and religious nature, and he is under obligation to seek his happiness by the development of his entire being. Strong drink must be classed among articles of consumption; and whether its use is economical must depend in a measure upon its relative utility and cost, compared with the relative utility and cost of other articles of diet. If not a necessary, but a luxury—and such is the decision of leading economists and statesmen—the comparison must lie between it and other luxuries; and the question arises, does it cost more than they, considering their relative prices and utility? It is to be remembered that the price of intoxicating liquors, especially ardent spirits, is artificially and highly raised by revenue imposts; yet this element of expense must be regarded as permanent, since, on moral grounds, Mr. Gladstone and all our fiscal authorities object to any large remission of duty, which would stimulate the consumption of such drinks.

Most needful is it, however, in an economic sense, to compare their value and cost with the means of the purchaser. A rich man is not justified in paying more for an article than it is worth, but his extravagance may exert no sensible effect upon his power of providing for his welfare in every other respect. The same cannot be said of persons with more moderate incomes; still less can it be said of the working myriads of the land. Every anti-economic act tells upon their well-being, by palpably limiting their ability of providing other things of which they stand in need. "Can I spare it? Can I afford it?" is the first question, or, at least, the second, that starts to the lips of a wise man when urged to buy anything, however pleasant, and even plainly useful. He knows, by painful experience, that there are many good things he cannot justly obtain, and a warfare is ever sustained between his desires and the purchasing power of his purse. Intoxicating liquors are not to be had gratis—or, if they are, it is often under circumstances that make them very dear in their results; and the cost of a small daily proportion will, in the course of a year, swell to a goodly sum. We are now looking at the point as appropriate to the individual only, and cannot be accused of excess in naming 6d. per day as a moderate expenditure on all kinds of intoxicating liquors; yet 6d. multiplied by 365 is £9 2s. 6d. per annum. Take even 3d. a day, and the amount is £4 11s. 3d. The average adult expenditure in the United Kingdom lies between these estimates; and among working men and women the proportion cannot be put down lower than £4 11s. 3d. per head. Now, if a person has himself alone to provide for, he is undeniably bound to answer satisfactorily the question whether he can spare several pounds a year for intoxicating liquors? The self-respect which a working man ought to cultivate as studiously as any other man, enjoins upon him the purchase of good clothes, residence in a decent house, familiarity with healthy literature, and a thousand other things, all of them "costing money." There is also provision to be made for times of slackness and sickness, and a shilling at hand for assisting some poorer brother. It is only right that each should ask himself, "Can I obtain all these things, and have as much of them as I ought to have, and yet lay out money on intoxicating drinks?" Liberal men who use liquors are likewise apt to buy them for others in return for similar offers, and to provide them for the visitors they entertain. This much increases the annual cost. Is it venturing too far to state that, in cases without number, a comparatively small expenditure on strong drink is only possible by foregoing personal comforts and means of improvement which should be preferred, on the score of economy, by every reasonable man?

But individual profit is not alone to be consulted. The family tie exists, and economy is a word of profound significance in regard to the family circle.

(To be continued.)

WORKING MEN'S HOUSES IN SCOTLAND.

IT is more than twenty years since attention was first seriously called to the unsatisfactory state of the houses of the working classes in Scotland. At first the matter excited little interest, but gradually, as speeches and pamphlets succeeded each other, all indicating a very unsound state of matters, both in town and country, a decided impression was made on the public mind, and some imperfect measures in the way of remedy proposed and adopted. At length it occurred to a few friends of the cause that the taking of the census of 1861 presented a most favourable opportunity for having the whole reality of the evil ascertained and exhibited. A representation was accordingly made to Sir G. Cornewall Lewis, then Secretary of State for the Home Department, and, after a little difficulty, he consented to have an additional column placed in the census schedules for Scotland, intimating the number of rooms or apartments in every inhabited house, and stating whether the house or room had a

window or not. The men who urged this were anxious that a similar return should have been made for England and Ireland also, but in this they did not succeed. It is to be hoped that when the next census is taken, in 1871, this and other important information will be obtained uniformly for the three kingdoms. Meantime, the result, in regard to Scotland, is curious and instructive. Here is the general outline of it:—

HOUSE ACCOMMODATION IN SCOTLAND.

Rooms without windows	7,964
Houses of one room	226,723
,, two rooms...	246,601
,, three rooms	75,933
,, four rooms	37,186
,, five rooms...	19,910
,, six rooms	15,278
,, seven and more rooms...	37,191
Total houses in Scotland	666,786

From this it appears that, exclusive of the houses or *dens* without windows, there are 226,723 houses of only one apartment, or about one-third of the whole houses of Scotland. Any man of the least intelligence may judge what the social state of the people so accommodated must necessarily be. The sick and the whole, the living and the dead, must thus be huddled together without the possibility of separation; and the feelings and moral perceptions of the young must be blunted from their very earliest years. But this—bad as it is—does not represent the full amount of the evil, for 40,703 of these one-roomed houses have each from *six* to *sixteen* persons residing in them, as will be seen by the following table—

18,983	One-roomed houses have	6	persons in each room.	
11,770	,,	,,	7	,,
5,994	,,	,,	8	,,
2,538	,,	,,	9	,,
936	,,	,,	10	,,
295	,,	,,	11	,,
123	,,	,,	12	,,
40	,,	,,	13	,,
11	,,	,,	14	,,
9	,,	,,	15	,,
4	,,	,,	16	,,
40,703				

The report gives also the details of this in two great cities, setting forth the state of house accommodation in Edinburgh and Glasgow; in both representing a state of matters equally, if not more, unsatisfactory than the general result implies. But into this we do not enter at present. It must be evident to all that such an authentic report of this true state of matters, under the authority of Parliament, is well fitted to alarm all who have the best interests of the population at heart. It must, also, be evident that if it were made universally for Great Britain and Ireland, and repeated at every decade, with the taking of the census, it would enable all not only to judge of the actual social state of the population, but to determine whether this state was improving, or the reverse.

We do not enter at present into the active means which have been employed, and are about to be employed, in Scotland to remedy this great social mischief. This may probably form the subject of future articles. JAMES BEGG, D.D.

The Land of Promise.

"THE throngs of emigrants that crowd to our shores are witnesses of the confidence of all peoples in our permanence. Here is the great land of free labour, where industry is blessed with unexampled rewards, and the bread of the working man is sweetened by the consciousness that the cause of the country 'is his own cause, his own safety, his own dignity.' Here every one enjoys the free use of his faculties, and the choice of activity as a natural right. Here, under the combined influence of a fruitful soil, genial climes, and happy institutions, population has increased fifteen-fold within a century. Here, through the easy development of boundless resources, wealth has increased with two-fold greater rapidity than numbers, so that we have become secure against the financial vicissitudes of other countries, and, alike in business and in opinion, are self-centred and truly independent. Here more and more care is given to provide education for every one born on our soil. Here religion, released from political connection with the civil Government, refuses to subserve the craft of statesmen, and becomes, in its independence, the spiritual life of the people. Here toleration is extended to every opinion, in the quiet certainty that truth needs only a fair field to secure the victory. Here the human mind goes forth unshackled in the pursuit of science, to collect stores of knowledge, and to acquire an ever-increasing mastery over the forces of Nature. Here the national domain is offered and held in millions of separate freeholds, so that our fellow-citizens, beyond the occupants of any other part of the earth, constitute in reality a people. Here exists the Democratic form of Government, and that form of Government, by the confession of European statesmen, 'gives a power of which no other form is capable, because it incorporates every man with the State, and arouses everything that belongs to the soul.'

"Where, in past history, does a parallel exist to the public happiness which is within the reach of the people of the United States. Where, in any part of the globe, can institutions be found so suited to their habits, or so entitled to their love as their own free Constitution? Every one of them, then, in whatever part of the land he has his home, must wish its perpetuity. Who of them will not now acknowledge, in the words of Washington, that 'every step by which the people of the United States have advanced to the character of an independent nation, seems to have been distinguished by some token of Providential agency.' Who will not join with me in the prayer, that the Invisible Hand which has led us through the clouds that gloomed around our path, will so guide us onward to a perfect restoration of fraternal affection, that we of this day may be able to transmit our great inheritance of State Government in all their rights, of the general Government, in its whole constitutional vigour, to our posterity, and they to theirs through countless generations?"—*President Johnson's Message.*

TO MEN.

MEN, the time draws on to action—
Draws, with sternest-voiced demand;
Who would bear its strain and traction
Must be strong in heart and hand.
Who shall grapple double-handed
With it shall have manhood's name;
Who shall falter shall be branded
With unchanging mark of shame.

Toil, oh! Forgeman, damp and sooty,
At the shapes, that one by one
Grow, wherewith the iron duty
Of the season shall be done.
Toil; the time is loud with clamour,
And it striketh palm with thee,
In the ringing of thy hammer,
For the good that is to be.

Speed, oh! Ploughman; let not thistles
Prick out from the loaded wain;
On full many a field there bristles
Crop of steel instead of grain.
Speed; the soldier's orphan children,
Who in mercy shall not see
Where their father's grave is filled in,
Turn their hungry eyes to thee.

Strike, oh! Soldier, once and ever
For the right that grows apace;
Every blow of thine endeavour
Brings a glory to thy face.
It shall be a newer birthright
If the death-bolts hurtle by;
It shall brighten, though the earth-light
Fade before it from thine eye.

Sing, oh! Poet—be thy minor
Holy-sweet to match the wreath
Of the cypress, grown diviner
Now upon the brow of death.
And thy major's revelation—
Let it upward rise and roll
To the heights of aspiration
Of a nation's lifted soul.

Pray, oh! Christian—God is nearer
In the storm than in the sun;
And His will is growing clearer—
Pray His waiting will be done.
Done triumphant, as when Moses
Walked through night and death to see
Far in Sharon's vale the roses
Waiting ages for the free.

Toil, fight, sing, pray, men unshrinking,
With a high, heroic will;
And the good the time is thinking
To the perfect orb shall fill—
Orb of life for feet uplifted,
While calm brows are yet above
In new sunlight round them drifted
By the winds of broader love.

FROM LABOUR—noble, fruitful labour, growing ever nobler—will come forth the grand, sole miracle of Man, whereby Man has risen from the low places of this earth, very literally into Divine heavens. Ploughers, spinners, builders, prophets, poets, kings, Brindleys and Goethes, Odin's and Arkwrights, all martyrs, and noble men and gods, are of one grand host: immeasurable, marching ever forward since the beginnings of the world. The enormous, all-conquering, flame-crowned host, noble every soldier in it, sacred and alone noble. Let him who is not of it hide himself—let him tremble for himself.—*Thomas Carlyle.*

Art and Handicraft.

[The series of articles commenced in our present issue on "Art and Handicraft," is intended to embrace the question of artistic design in its application to the whole circle of art-manufacture and decoration.

The name of the writer will be a sufficient guarantee to the many to whom he is already known as an earnest and successful worker in London, Manchester, and Birmingham, in this field of national education, ever since the first general establishment of Government "Schools of Design," or, as they are now called, "Schools of Art," about 1840.

Regarding the WORKING MAN as a medium by which the writer is most likely to influence the thought of those directly interested in this question, he wishes us to assure our readers of his desire to render this series of articles illustrative of the principles of design as applied to industry as practically useful as possible, alike to the workman and manufacturers as *producers*, and the general public as the national *consumers*.]

I.—INTRODUCTION.

IT would be neither an easy nor a pleasant task to undertake to show the relation which Art bore to Handicraft thirty years ago. Within that period changes of so important a character have been effected in public sentiment, as connected with art in all its phases, that whatever may be the shortcomings in public taste, one thing is perfectly clear—all classes of society profess an interest in the great question of artistic design in some form. Thus, from something like an utter neglect of or inattention to the subject, a strong sentiment in favour of the artistic and the decorative has become the rule instead of the exception. The British artist-painter of pictures gets an amount of encouragement now-a-days which, in 1835, would have been looked upon as something outrageously absurd to calculate upon as likely to arise within a generation; whilst the British art-workman has begun, at least, to take something like an analogous position to his fellow-worker on the Continent, and will undoubtedly do very much more in the same direction, exactly in proportion as he fits himself by an intelligent appreciation of the value of art and art-knowledge, when applied to the ever-varying handicrafts in which beauty of form and decoration plays a prominent part.

It is something to have got a large and growing body of consumers, as forming an important portion of the general public, to recognise the value of sound principles in decorative art; as also to have convinced, very often in spite of themselves, a considerable number of manufacturers that it is to their interest, as well as to their credit, to produce works of an artistic character, in which the decorative adjuncts are so designed as to conform to the principles of good taste, as understood by those who have made it their business to investigate and understand those principles. There can be no doubt that it would be at least of equal importance to embue the workman, by whose handicraft power these works must be produced, with an intelligent apprehension of the "why and wherefore" of the forms or decorative details which he is called upon to produce in this union of art with handicraft. For out of such intelligence must arise a greater interest in the work done, and, with that interest, the development of a spirit in the doing, which cannot fail to act favourably on the result.

Your mere mechanical or machine-like workman will only produce a mechanical result. This, when art comes in as an element, is not favourable to beauty. Whatever shows the mental characteristics of the workman, rises—be the degree ever so remote from what is generally called art, to something like the dignity of art. Without some such mental characteristic it is dead mechanism.

Now, the workmen of the present day have opportunities and facilities afforded them which, at the period above alluded to, had no existence. Hence it was sheer nonsense to seek to mentally interest the workman in art questions without any means being provided by which he could obtain the requisite instruction in practice, necessary to enable him, when called upon, to realise the principles taught in the abstract. No one, however limited his means or humble his condi-

tion, if he has but the will and determination to learn, need be without requisite education in art at the present day.

When the Committee of the House of Commons on Arts and Manufactures reported, in 1836, that it was a necessity of the time that we should look to the future instruction of our artisans in the principles and practice of the arts of design as applied to industry, that committee meant what has followed—slowly perhaps, and often with tortuous steps, or after a roundabout fashion, but still always progressively — that the most ample facilities which circumstances would permit should be provided, in part at least, at the public cost, for the instruction of all who desired to avail themselves of such instruction, and especially the workman, in the practice of the arts of drawing and design in their bearing upon handicraft processes in manufactures.

The day is altogether past for the discussion of the value of this kind of instruction. All whose opinions are worth listening to are agreed that such instruction is one of the most important requirements of the education of the people; and whatever differences of opinion have arisen from time to time, and may possibly continue to arise, as to the best and most direct methods of doing the work, all are pretty well agreed that the true test of the value of the instruction imparted in Schools of Art, and other kindred institutions, is what they effect for the art-industry of the country. This will present itself in two forms: 1. In the *positive* instruction of the artisan, the designer, and the manufacturer, as *producers*. 2. In the *relative* instruction of the public in matters of taste, as *purchasers* and *consumers*. Both are of equal practical importance, and they must go hand in hand together to ensure proper results. In the first category, however, the workman stands as the central figure of the group, and much—nay, almost everything—depends upon the spirit with which he enters upon his work; since from his ranks must arise, in very many instances, both the designers and manufacturers of the future. The more distinct, precise, and, when practicable, *special* the education the workman gets can be made in relation to his wants; and the more intelligently he can be made to see this relation, the more certain and satisfactory will be the result, both individually and nationally. There is great force in directness at all times, and art-education is no exception to the rule.

The question of what and how the general public is to be, or may be taught, scarcely needs more than the simple declaration, that whatever is taught should be taught thoroughly. "Anyhow" will no more do in the case of the general public than in that of the artisan. Perhaps all that need be said on this point in relation to the object in view, can be given under the three heads of—

1. The primary wants of the artisan as *a workman*.

2. The primary wants of the manufacturer as *a director*.

3. The primary wants of the public as *the national consumer*.

My next will deal with the first of these.

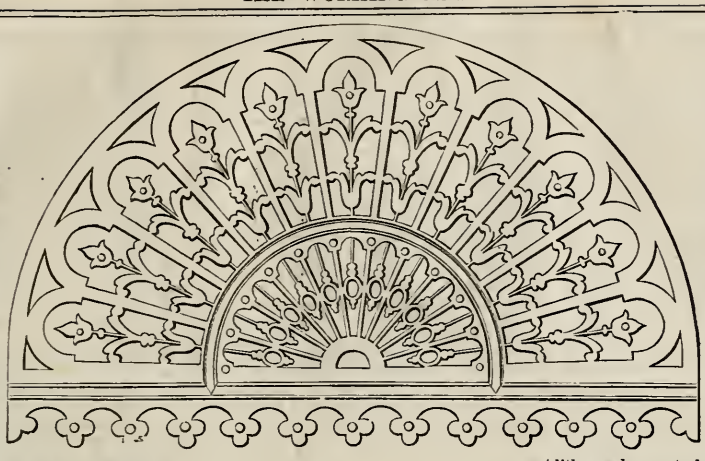
GEORGE WALLIS.

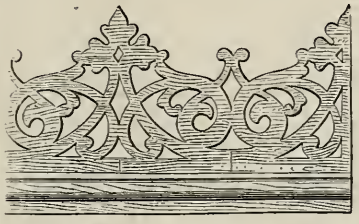
Art Designs

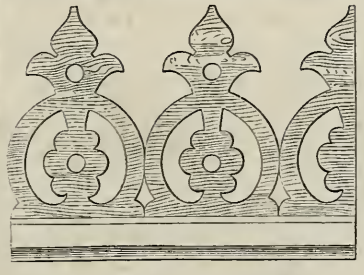
FOR USE IN TRADES AND MANUFACTURES.

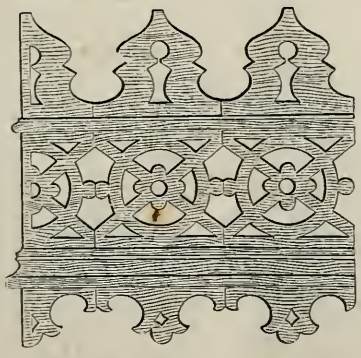
ORNAMENTAL FRETWORK.

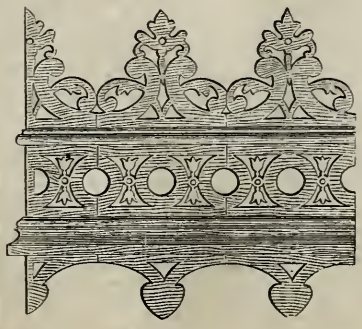
THE neglected and degraded condition in which ornamental art has so long remained in this country has been sufficiently evidenced by the lamentable deficiency of taste observable in many of those departments of industry in which some knowledge of the principles of ornamental art is essential, if anything like an approach to perfection is required to be obtained. Of late years a marked improvement in this respect has been observable. We are paying more attention to the necessity of graceful and appropriate design in even the commonest articles of every-day use. Time was when the possession of taste and refinement was deemed to be exclusively the privilege of the wealthy; but the contents of our working-class industrial exhibitions have clearly demonstrated beyond all cavil, that the love of art has penetrated amongst the industrial community. The artisan is no longer content to have his parlour wall disfigured with coarsely-drawn pictures, gaudily painted in all the colours of the rainbow; or his mantelpiece crowded with miserable-looking cats and dogs "as large as life." He now has his well-executed lithographs or steel engravings in neat, tasteful frames, or groups of wax flowers, or cheap statuettes, with which to decorate his chimney-shelf. This is a sure sign of art progress, but something more is required. We want our working men to carry their newly-acquired tastes more extensively into the workshop, instead of keeping them, as it were, for holiday use. If this were the case, the eye would not continue to be so frequently offended by the absence of taste visible in many of our handicrafts. Yet it is but fair to the artisans to state that the instances in which they are conscious of this deficiency are far from few. The great obstacle in their way seems to be the absence of good and tasteful designs, which might serve both as a guide to what has been done and to what remains to be effected. With the view of assisting, as far as possible, in the attempts of such working men to improve themselves in this direction, we purpose, occasionally, giving ornamental designs for the use of those employed in trades and manufactures. The illustrations in the present number represent specimens of ornamental fretwork, suitable for numerous purposes, whether in wood, stone, or metal. The semicircular design might be used in the upper portion of a gate, window, or section of a verandah. A little taste and ingenuity on the part of the artisan would enable him to modify or vary the designs so as to suit the peculiar purpose for which it is desired to adopt them. The other designs might also be usefully introduced into the woodwork of summer-houses, rustic cottages, and so on, or, on a miniature scale, in the construction of articles of ornament and furniture, according to the taste and skill of the workman.











Carving in Wood.

ONE of the principal lessons derivable from the Working Class Industrial Exhibitions now so numerous in this country, is the ever increasing tendency on the part of many of our artisans to employ their leisure time in a manner much more rational and improving than was heretofore their wont. Instead of thoughtlessly wasting their spare hours in the beer-shop, or in sauntering idly about the streets, they are beginning to take a pleasure in the cultivation of those artistic tastes, the possession of which seldom fails to shed an elevating and refining influence over even the humblest abode. These circumstances are both encouraging and gratifying, for, as Mr. Layard has truly observed, such tastes and the public-house—that terrible bane of the working man—cannot exist together.

With the view of assisting the artisan in the acquirement of a knowledge of the various methods in which his artistic abilities may be turned to practical account, we propose to furnish occasional papers, of an instructive and practical character, concerning those branches of art-industry in which much of the value of the articles produced depends upon the individual taste and skill of the workman.

Our first paper relates to Wood-Carving. The term *carving* is properly applied to works in wood or ivory—carving in stone or marble being termed *sculpture*, and in metal, *chasing*. At one period

the art of wood-carving was extensively practised in this country, the reputation enjoyed by Grinling Gibbons as a wood-carver being extremely great; but until the recent revival of a taste for Gothic architecture, it had dwindled into a state of comparative insignificance. Wood-carving is now largely employed in the decoration of articles of furniture, and affords both a pleasant and profitable means of employing one's leisure time, especially when devoted to the execution of works in relief—a species of carving in which Continental workmen are found to excel.

The tools required by the wood-carver are few and simple. He should commence by procuring a small deal table, standing firmly on four legs, then bore several holes across and along it, and get pegs or long nails to fit into them. Provide also a long, narrow slip of wood, about an inch square, with corresponding holes in it at each end, by means of which the pegs may secure it to the table in any position required. This is to act as a kind of holdfast, to prevent the slipping of the wood to be carved, as it would be not only fatiguing, but exceedingly dangerous, to depend on the left hand for securing it; the pressure of the chisel being considerable at times, and the carver unable to ensure himself from the occasional and unexpected slipping of the instrument in use.

The steel instruments absolutely necessary are nine in number—viz., three *straight chisels*, three *semi-circular gouges*, and three *bayonet chisels*; also, a very fine, sharp penknife, so fixed into a handle as not to close, a soft Turkey stone for sharpening the tools, and, lastly, some fine glass-paper. Diagrams of the gouges and chisels used for carving will be given in next number. At Oxford the bayonet chisels are not shaped exactly like those; they are more gradually curved, but may answer the purpose for which they are designed equally well. These tools can be procured at any of the better class of tool shops, and are inexpensive—costing about ninepence or one shilling each.

It is purely a matter of individual opinion as to whether carved wood-work should be polished, varnished, or left in the rough. If the pattern be delicate, it will not bear polishing, nor can the interstices be reached in this process, while the latter would be choked by ordinary varnish. We can safely recommend the varnish used by bookbinders for leather-work, two or three coats of which, laid on thinly, will brighten and preserve the work, and sink sufficiently to leave the interstices free. In varnishing, it will be found advisable to use two badger's-hair brushes—one flat, and about an inch wide, the other a fine pointed one. The varnish most recommended is styled "Imperial varnish for bookbinders;" but as a difference of opinion prevails on the subject of varnishing, it may be well to suggest the use of the "Swiss walnut dye," to be applied in the same way. A bottle of this costs about one shilling. Varnish may be afterwards applied over the dye, if desired.

(*To be continued.*)

Trades Unions: their Limited Sphere.

THERE never was an invention of the working class for improving their position more natural or more defensible, at the same time more crude and impotent, than Trades Unions. They are the boomerangs of the working class. That peculiar Indian instrument is, as the reader is doubtless aware, a bow so constructed that when jerked through the air it has the uncomfortable property of returning into the face of the ingenious projector who jerked it out, unless he take good care to change his position; and the sharper the jerk and stouter the arm propelling it, the more violently is the propeller struck. We have seen Trades Union Strikes compared to the boomerang. Projected at Capital, they return and strike Labour. Surely this instrument may be improved. If, indeed, this cannot be superseded, some other auxiliary appliances might be called into the field. There is certainly room for a little originality. There would be a great change in public opinion upon Trades Unions, and of the general character of the working class, were these unions to be devoted to objects which affect the honour as well as wages of workmen—their artistic character as well as their personal independence. The "working class" is a formidable term now. The whole body of artisans are coming to the front. Combination among them is at once a sign of intelligence and power. Yet it is wonderful how little they do, compared with what they might accomplish. There are noble, intelligent men among Trades Unionists, but they do not always put themselves forward. They ofttimes give place to ignoble men. They are too modest to be useful. They retire before the noisy. They are afraid of their own order. Modesty itself is a sort of cowardly or criminal thing, when it shrinks from action. Intelligence should be self-asserting where improvement can be effected. The way is open, and the majority of workmen would be rather glad than otherwise to help the wisest to the top and see them uppermost.

The "trade" feeling is all you get now from Trades Unions. They are grossly material without exactly knowing it. They aim as far as they see, but do not see far enough. Unions should have higher, wider, nobler views. The workman should aim to be a thinker and an artist. English workmen have more pride in their work than Scotchmen; but Scotchmen have more pliancy of mind, more industrial ambition, than Englishmen. When a Scotchman has worked in one branch a few months, he aspires to learn another branch. He wants to do, and he will do something else. An English workman will grind files, sharpen needles, drill holes, hammer at an anvil—will do one thing all his days. An Englishman will do one thing tolerably well—a Scotchman will do many indifferently. The Scotchman is more useful, and has many chances of rising to an Englishman's one. Trades Unions do not take into account or care for the workman's character and abilities—only his wages. His power of commanding higher wages might be indefinitely increased in a hundred ways nobler than strikes: albeit, strikes may do duty until better devices are apparent—and it is high time they were.

The workman has had, in modern times, no nobler friend, no wiser adviser, than Mr. John Ruskin. He would make the workman a man, not a tool—a thinker, not a machine—an artist, rather than a mere operative. In a foundry in Birmingham, where more than a hundred men were employed as moulders, carpenters, patternmakers, smiths, fitters, and engine-builders, there were but four artists among them all. Three commanded high wages, because their work was incomparable and indispensable. One, the noblest of them all, was neglected, paid badly, because his employer had no discernment of his value. An old, tall, thin, half-fed smith, was he. He had no wife, only a daughter, who was employed blackleading grates in the same foundry; and when work was over she hurried home to make a fire and prepare the nightly tea for her old father. The sad, gallant old man had honour as well as a true workman's pride in his work. He would always be at the foundry doors before six o'clock in the morning. Before the bell rang he was there. He was never late—never behind time. He never laid down his hammer until after the breakfast or dinner bell rang. He was back at his anvil before it rang again. He would often stay dinner in his shop in order to make himself tools. His tongs were of every variety, forged with exquisite skill. Each was a work of blacksmith's art. There were no such hammers in the whole town as his. He would not work with a bad tool. His tools were the admiration of all the indifferent and inactive workmen in the place, who would borrow them as often as they could—sometimes forget to return them. Never, however, did they try to make similar ones for themselves. The sinewy, shrunken old man was employed in forging and fitting, in blacksmith's not whitesmith's work; but no such work as his was seen in all the town. His oven doors turned on their hinges like intelligent, healthy, willing things. He would not work fast. Paid or not paid, he would not hurry. He worked by the piece, but every piece was perfect after its kind before it left his hands. Mr. Ruskin or Mr. Carlyle would have worshipped the poor, grim, sinewy, melancholy old man, who, however, had the silent joy of a skilled and honest workman. He died with the ring of his own anvil in his ears. He fell down at his work, and spake no more. Of all those fellow-workmen of that period he was the best worth remembering. But no Trades Union thought it worth its while to look after increase of his wages, or had any sympathy with a character like his; yet such workmen, were they multiplied, would soon raise the wages of their department and the character of their own order. That poor old artist of the anvil was better worth public honour than the fattest alderman or the wealthiest mayor, who has nothing but a distended skin or a turgid portmonnaie to recommend him.

Certainly, it would be to the interest of industry that Trades Unions should occupy a wider sphere than they have hitherto done. The order of industry should be the noblest of all orders. The Austrians, in the last century, established an "order of merit"—the "noblest order," says the historian of Frederick the Great, "that the Austrians yet have." Industry is not an order in England. Labour has never yet got beyond a Trades Union. Working Men's Institutes; Industrial Exhibitions, are mainly promoted by the middle and upper classes. They have no distinctive recognition from the trades. Intelligent leaders of industry ought to be foremost in promoting officially these important efforts. Schools of Design, Mechanics' Institutions, Kensington Art Museums, ought to be crowded by the sons and daughters of Trades Unionists. The attention of members of Trade Societies ought to be constantly and officially called to these institutions. Meetings should be held to explain their uses and important advantages to the artisan classes. Tracts ought to be written for circulation among all workmen, inciting them to take advantage of these invaluable opportunities of industrial improvement. Thousands of young men pour into our cities and great manufacturing towns yearly, who know nothing of the means generously provided for their improvement, and their families grow up without ever using these opportunities, which generous and intelligent well-wishers of the working classes devote time and money to create. It is wonderful what a little way Trades Unionists see. We believe it will be useful to endeavour in these pages to increase their horizon of sight. There is a wealth of unused advantages lying around them perfectly amazing.

Men who have Risen from the Ranks.

I.—ABRAHAM LINCOLN.

THE world of the working class is as yet a good deal of a lottery, where the prizes seem few, and to fall by chance. Still, were it wholly so, which is not the case, the working man has the means of winning the prize somewhat in his own hands, and much more so now than formerly; and is likely to have the means under his own control much more in the future than now. Even in a lottery a man, to have a chance at all, must possess a ticket. In the lottery of Labour, Industry is the ticket which gives the best prospect of a prize. Diligence, guided by good sense—which, in this case, signifies foresight and prudence, persistence and a wise self-denial—will always entitle a man to success, and, in most cases, will now secure it. The road from the depths of society to the surface is steep, and requires stout climbing. But in these days resolute men can get up. In worse days, resolute men have reached the surface, and not a few have mounted to prominent places. Great numbers would do it, if they knew well how it has been accomplished by their fellows—if they knew well their own powers, and what it is possible for sagacious and determined men and women to do. The way to rise in the ranks of industry is not so clear as it should be, nor the road so level as it will be. Many deserving men fall by the way, and many, who ultimately succeed in the journey, often faint by the way. But if all knew how to gain strength, and to husband it, and to use it when gained, success would be far more common than it is. The best way to show this is by taking actual examples. What one man can do another can do—what has been done by energetic men with a purpose in them, and not afraid of work, can, as a general rule, be done again by others.

Abraham Lincoln, the late President of the United States of America—a name familiar just now as a "household word"—is an example of a working man who did everything for himself—who, without any advantage of birth or education, climbed up to an unoccupied pinnacle of the world's history.

Far away in Kentucky, in the almost lost regions of Larne, Abraham Lincoln was born in 1809. Quaker blood ran in his veins, and Puritan

names in his family; but no tradition of education or comfort existed in it. Born in an obscure cabin, to an obscure lot, and in a district where education was impossible (had the pecuniary means existed to pay for it), he grew up without any, save that which he could give himself. Young Lincoln had eyes and a brain. He could think and see. We do not mention his ears, because they were of small use to him. There was little or nothing to hear in the wild and nearly uninhabited wilderness where he was brought up—"raised" they say in those parts. But industry, daring thought, patience—these were possible to him, as they are to all. He split rails, but he split them well. He built a flat-bottomed boat, and valiantly guided it down the Mississippi. He had a quick eye and a prompt hand. When wanted he was ready. He lay in the way to be useful.

He learnt to read, and read well whatever he could get to read, which happened to be "Bunyan's Pilgrim's Progress" and "Æsop's Fables," which probably developed that talent for personation and story-telling, which made him so sensible and amusing in after life. A certain thoroughness was with him a characteristic, and an honesty also. A book he had borrowed from Mr. Crawford, his cabin schoolmaster, became damaged by damp. He dried it, but made no attempt to doctor it up and pass it back to the owner, affecting not to know what he had done to it. Concealment, imposition, fraud of any kind, disguise, were alien to his nature. He had a courageous probity. He went straight to Mr. Crawford, told his story, exposed the damage, and proposed to make it good. The arrangement was made that young Abraham was to work three days for the owner, in payment of the book, of which he thenceforth became the worthy, honest, proud proprietor. This integrity was expensive at first, but it was the most profitable investment he or any man could make. Ultimately, it made Abraham Lincoln a king.

Bent upon improvement, he early saw that quarrelling was a waste of temper and time. Looking well around him, he could not help but perceive that differences generally began in ignorance and ended in folly or crime. A little observation showed him that the fund of ready-made illustrious in the world was very great, and there was no need to increase it. Discord had plenty of friends, even in the backwoods, and he would not be one of them. And he was distinguished, when a mere youth, as a "peace-maker." Without learning, without money, by valiant, thoughtful self-education, he found out the secret of being sagacious and useful. He acquired pacific power and local repute.

Rough customers floated down the Mississippi about 1830. Peace-making on those waters was no horticultural vocation, nor was the employment of a boatman an inviting one. It had its cares and dangers. To guide and propel a crazy boat, in all weathers, down 2,000 miles of water; to lie at night with no covering but a blanket; on no bed but the deck of the boat; to spend months and years in this way, was not a condition of things under which men acquire knowledge or improve their minds. But those who have minds to cultivate, can anywhere in this open world cultivate them.

To get a diploma from a college, if there are colleges in your part of the world, and you are able to belong to them, is all very well; but, failing that, a diploma obtained from a man's neighbours and associates will go a long way, and not be without honour. Already our Mississippi hero was known as "Honest Abe;" and when the Black Hawk war broke out, he was chosen by his neighbours as their captain. For scorning danger, or defying fatigue, he had no superior in those uncomfortable parts. Captain Lincoln was astonished at his selection—at the respect shown to him. He had played a simple, manly part; he had done his duty thoroughly in his sphere, and did not know that that was a remarkable thing. He, however, was never prouder of any distinction he achieved than of this. It was his virgin honour.

He was started on his return from the war for legislatorial service. Beaten there, he quietly turned to shopkeeping, uniting with it the function of village postmaster. But here came in those inexorable laws of supply and demand, of which the Black Hawk captain had heard of only in a dim way, but which act all the same whether heard of, or understood, or not. In backwoods, as well as in great cities, social science is all the same; and there was demand at Postmaster Lincoln's store, but no supply, or a very inadequate one. The storekeeper was deficient in capital; and as no profit could be made where no transactions took place, our adventurous storekeeper vanished from that particular class of merchants; albeit to reappear in an unlooked-for quarter.

A rough and disagreeable duty appeared necessary to be done by our unfortunate postmaster. The neighbourhood was infested by a pugilistic nuisance, one "Billy Bowlegs." Bumptious Billy was a bully and terror to a decent people of flaccid muscles. The Black Hawk captain took the disagreeable knave in hand, and, to use the language of the ring, "polished him off." The turbulent terror got his quietus, decent people had peace ever after, and Lincoln acquired fame as a practical pacificator. But his own taste lay in thoughtful things, and he applied himself to the study of the law. Purchasing a few books, he mastered them. Fortunately removed from temptations to desultoriness, and taught by his own good sense that concentration of attention was the sole means of mastery, he became a shrewd, sensible backwoods attorney. Knowing that evidence was the instrument of justice, he learned to make sure of that; and to be sure of that, his natural sagacity told him that he must take nothing for granted. It occurred, in what may be called his prairie practice, that the son of a Mrs. Armstrong, a mistress in whose service Lincoln had formerly been, had got mixed up in a fray in which a man was murdered; and young Armstrong lay in gaol, under charge of having committed the murder. As the youth's mother had been a kind mistress to young Lincoln when in her service, he volunteered to defend her son. Finding that the chief witness deposed that he identified the alleged murderer, because he plainly saw his face as he struck the blow, Mr. Lincoln asked "how he could see his face at night?" The reply was that "the moon was shining clearly at the time, and fell upon the murderer's face." Mr. Lincoln had no evidence which enabled him to question this allegation; but he proceeded to inquire whether it was a fact. To test it, he consulted the meteorological almanack of the time, when he found that on the date of the murder the moon did not rise in those parts at all until half an hour after the time when the witness swore it was shining clearly. This evidence, therefore, was pure moonshine of the wrong kind. This Mr. Lincoln explained to the jury, and the young man was acquitted; and the thoughtful, fact-sifting attorney had the satisfaction of showing his gratitude to his early benefactress, by presenting her with the life of her son.

In 1834, Mr. Lincoln was successfully landed in the local legislature of his district; and in 1847 in Congress, as member for Illinois; and twenty-three years later he was elected President of the American nation. Throughout his career his character was like his handwriting—legible and simple: the down-strokes bold, the up-strokes clear. He disliked that style of calligraphy which was too ornamental to be read. He, manifestly, had the manly taste which holds that character, like the handwriting, is all the better when it can be easily made out.

Quite unknown to Europe when he appeared unexpectedly at the top of American society, his past life was naturally scrutinised; but Mr. Lincoln always, whenever and wherever the biographical examiner lights upon him in the past, turns up a wholesome, kindly-natured, sagacious, honest man. No baseness, no evasion of duty, no *finesse*, no supineness as to duty, ever appears. He played his part in politics in the spirit of a true workman. He gave himself to his task, and executed it well. He possessed or acquired that one quality which transmutes a savage who has it into a gentleman—that of constant consideration for the feelings of others. He gave no pain that he could possibly avoid, even in doing necessary things. His honesty, his studiousness, his legalness, walking by rules where rules were laid down, his patience, humorousness, and fixedness of purpose, all indicate a man who had used his leisure to become master of himself, before he became master of others.

These were the qualities which enabled a rail-splitter of Decatur, of buckskin attire and a racoonskin cap, to find his way to the head of the State. When he was elected President, his friends tore up the rails round his father's house, the first Lincoln split, and carried them in triumph and honour before him from State to State. He was a child of toil, and in America "labour is sacred," and no man is ashamed of it. It was a working man who had become king. But the lithe giant of the Sangamon River, for Abraham Lincoln was six feet four inches high—the tallest man who ever attained the highest political eminence—would never have left the name he did in the world but for those personal qualities, which he took more trouble than most workmen to cultivate. He had the sense to see that it was not the amount of information, but the sureness of a man's knowledge, that gave him real power. In political debate he would not rest content with consulting dictionaries for the meaning men ought to attach to their terms—his rule was to ask the men themselves what sense they attached to their words. His genius lay in the use of his eyes. He understood the art of looking round him—round his feet before he stepped, as one begins life in a twilight—round his chair before he moved it, lest he placed it before others—round an idea before he adopted it, to see what it meant—round his speech before he spoke, to be sure that it was necessary and to the purpose—round an act before he did it, that he might not have to undo it or regret it afterwards—round his friends before he accepted them or changed them—round a servant before he dismissed him—round an offence before he punished it, that he might do no unjust thing—round the law before he consented to supersede it by an exercise of supreme and dangerous authority.

The bullet of the assassin might destroy the life, but it could not touch the fame, nor destroy the splendour of his example. The world will believe of his life, as Mr. Disraeli, with equal grace and genius, said in the House of Commons of his death—"In the character of the victim, and in the accessories of his almost latest moments, there is something so homely and so innocent, that it takes the subject, as it were, out of the pomp of history and the ceremonial of diplomacy—it touches the heart of nations, and appeals to the sentiments of mankind."

SIXPENCE UNDER MY THUMB.

SIXPENCE under my thumb, my boys,
And a wife that's trim and clean;
With a cheery word, and a will to work,
And a kiss, mayhap, between.
A good tight roof, and a bit of meat,
A faggot behind the door;
Come what will, we'll never complain,
Because—we want no more.

Sixpence under my thumb, my boys,
And never a debt to fear;
A little store for a rainy day,
And a door that no wolf comes near;
A good strong arm, and a bright fireside,
And then, as I said before,
Come what will, we'll never complain,
Because—we want no more. G. E. M.

ITEMS OF INTEREST.

WORKMEN FOR JAPAN.—About sixty skilled workmen, of various trades, have just been engaged by the Japanese Ambassadors, now at Brest, to accompany them to the East, at very liberal wages.

STEAMERS IN THE PACIFIC TRADE.—Eighteen monster steamers leave or arrive at Colon, on the eastern side of the Isthmus of Panama, every month. These steamers are connected with Southampton, Liverpool, France, and the United States. Sixteen monster steamers leave or arrive at Panama, on the western side of the isthmus, every month. These steamers belong to English and American mail-packet companies and the Panama Railroad Company.

LOCOMOTIVE BUILDING IN CALIFORNIA.—The first locomotive ever built in California has just made its trial trip on the San Francisco and San Jose Railroad. The cylinders of this locomotive are 18 in. in diameter, with a 24-in. stroke; the driving wheels, 5 ft. in diameter; length of locomotive, 26½ ft. over frame; diameter of boiler, 44 in., containing 141 2-in. tubes 11 ft. in length; total weight of locomotive, 30 tons. The locomotive drew four cars, containing 300 invited guests; and on the return trip, made two miles in 108 seconds, the best time yet accomplished on that side of the Rocky Mountains.

A PRACTICAL JURY.—At an industrial exhibition, recently held at Vienne (Isère), a variety of artificial legs, constructed on an entirely new principle, were exposed to view. The jurymen, whose duty it was to decide on the comparative merits of the instruments, were much perplexed. At last they bethought them of assembling half-a-dozen Crimean and Mexican *amputés*, and starting them over a half-mile course equipped with the rival legs. The prize is stated to have been won by an *invalide*, both of whose legs had been taken off at the knee, but who, nevertheless, went over the distance in nine minutes.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JANUARY 6, 1866.

TO OUR READERS.

THERE is an old-established custom, which has more than antiquity to recommend it, that, when a new periodical makes its entrance into literary life, it should declare its principles, and announce its programme. We feel no disposition, in ushering the WORKING MAN into the world of journalism, to depart from this ancient and wholesome usage. On the contrary, we consider that there is no publication with reference to which such an explanation is so imperatively necessary, as one which undertakes to deal with questions peculiarly affecting the Working Classes. On no subject has more misunderstanding prevailed between those who wrote and spoke and those for whose benefit what they wrote and spoke was intended. It is greatly to be feared that many efforts, made with the best intentions, to solve the difficult problems which the condition of the Working Man presents, have not only failed signally in their benevolent purpose, but have served more desperately to complicate these problems, by inadvertently and unconsciously wounding feelings which it was sought to soothe, embittering animosities which it was sought to allay, and confirming prejudices which it was sought to remove. It is therefore essential that the conductors of the WORKING MAN should make a full and explicit statement of the objects they have in view, and the means they propose to employ for their attainment.

The title of our Publication speaks for itself, and forms a brief but complete index to its contents. Whatever concerns the interest of the Working Man—using the term in its widest sense, as including not only working *men*, but working *women*, and working *children*—will fall appropriately within our sphere. The rights of the Working Man and his duties; the relations of employer and employed; the Trade Union, and the Masters' Association; the strike, and the lock-out; the rate of wages, and the hours of labour; the Co-operative Society, the Benefit Society, the Temperance Society, and the Working Men's Exhibition; the education of the labouring classes; their diet; their sanitary condition; their dwellings; their employments; their recreations: these, and all other kindred topics, will demand and receive our attention. A glance through the following pages will show that a portion of our space will also be devoted to other subjects of interest; but our main business will be with those above enumerated. We hope, therefore, that the Working Man will find in our columns advice in difficulty, and information in doubt; warning in danger, and encouragement in trial.

Such then is the task we have proposed to ourselves. To enlarge either on its importance or its difficulty would be superfluous. Accordingly, we proceed at once to indicate the means which we purpose employing in order to carry it out.

In our opinion, one of the chief causes of the failure of so many efforts to deal satisfactorily with the questions which we propose to discuss, lies in the fact that they have in general been made by persons belonging exclusively either to the class called *practical*, or to the class called *theoretical* men. Hitherto these two classes have lived and worked in a state, so to speak, of estrangement, deriving from each other no assistance in the pursuit of their common object. The philosopher, in the solitude of his study, worked out problems regarding the labouring classes to a solution satisfactory to his own mind, and correct so far as the facts on which he based his reasonings went. But, strangely unmindful of the incompleteness of his *data*, he claimed for his conclusions a universality of application to which they were not entitled; and, attributing the ill reception with which his theories met to ignorance, stupidity, or prejudice, refused even to listen to the objections which the Working Man, practically acquainted with the circumstances of his own case, brought against their truth. The labouring classes, thus condemned unheard, imbibed a deep distrust of all abstract speculation on their condition and the means of bettering it. They therefore set about working out experiments on the subject for themselves, and framing upon them theories of their own—theories which contained many important elements of truth, but which might naturally be expected to be deficient in breadth of view.

There is, indeed, a third class whose speculations on such subjects have been simply mischievous—a class of persons who, without either theoretical or practical knowledge to guide them, rashly broached opinions for which they had no better foundation than a superficial acquaintance with a few of the general principles of political economy, the mere enunciation of which, they seemed to think, would act as a sort of charm, and dispel the troublesome doubts and difficulties which they were unable either to understand or solve. The interference of these ignorant and presumptuous pretenders has been resented as an impertinence by the working classes, and has rendered the latter much less accessible to the views put forward by really thoughtful men.

What course, then, do we propose to take? Our method will be this: We shall not lecture the working classes from a platform raised on an assumption of higher wisdom or greater knowledge—nor, we may add in parenthesis, shall we preach to them from a pulpit elevated on an assumption of superior virtue or benevolence. It will be in no narrow spirit of dogmatism that we shall approach the consideration of the vast and difficult problems which we shall be called on to solve—problems so vast and so difficult that, were we not persuaded of the usefulness of an honest, even though unsuccessful, attempt to grapple with them, we might well shrink from the task. We shall not be ready with any of the cut-and-dry formulæ of political economy, with which to dispose summarily of the cases that from time to time come up for decision. But, on the other hand, we do not intend to fall back upon untutored common sense when we find ourselves in difficulty. We hope we have too just a conception of the inherent defects of the social sciences, and, at the same time, too just an appreciation of their merits, either to apply their rules with a procrustean pedantry, or to discard them as being in practice altogether useless. We wish to teach; but that we may do so effectively, we are willing to learn. We are desirous of working *for* the Working Man; but that we may do so efficiently, we are anxious to work *with* him. We propose, therefore, to call the experience of practical to the aid of scientific men. We hope that our Journal will form a common ground upon which the Working Man, with his intimate knowledge of the wants and aspirations of his class, may meet the statesman and the philosopher, who are seeking an opportunity to aid him to satisfy the one and realise the other. Already the assistance of many eminent thinkers, known friends of the working classes—men whose writings have shed a lustre on the literature of their country—has been promised to us in our arduous undertaking. It now only remains for the Working Men to do their part. We heartily invite and earnestly solicit their co-operation. So far as our space will admit, we shall always be glad to give a place in our columns to every honest and temperate expression of opinion, every item of information, and every suggestion, on matters affecting the welfare of the labouring classes, which shall be communicated to us by any person interested in the subject. The WORKING MAN will thus become a repository for the thoughts of those who, by genius, education, or experience, are best qualified to discuss the great questions which we shall have to consider, and for the facts on which alone a sound judgment on such questions can be formed.

And since the Working Man may also be considered as a possible Capitalist, not a few of them having already become so, by aid of their Self-help Associations; and even Landowner on a small scale, through the means of Land Societies; and also as an Employer, as Co-operative Manufacturing Societies * are making him—we shall necessarily have to treat of questions interesting to the Capitalist in the lower field of his operations, to the Director of Labour, to the Thinker who works with his brain, and marks out the path of the hand-worker, as well as the Worker himself. Indeed, the Consumer may be conceived as interested in the operations of Producers, a knowledge of which must be an important and intelligent element in determining his outlays.

There is, therefore, a wide field, in which we trust the WORKING MAN will find readers; and as we suppose it is possible to treat the subjects discussed in a readable manner, we hope our pages will be found to blend recreation with instruction.

Right Hon. William Ewart Gladstone, M.P.

FEW Englishmen in modern times have possessed so large a share of working-class esteem and confidence as that enjoyed by William Ewart Gladstone, who, during his thirty-three years of hard-working public life, has repeatedly shown himself to be one of the truest and most faithful friends that the industrial community have ever possessed; his leading measures being framed with the primary aim of promoting—so far as it is possible for legislative action to do so—the moral, intellectual, and social welfare of the toiling myriads, to whose ceaseless industry this country is principally indebted for its present unparalleled amount of wealth, greatness, and power.

Mr. Gladstone is one of the true representative men of the nineteenth century. The son of a wealthy and successful Liverpool merchant, he found himself aided at the commencement of what has proved such a brilliant public career, less by the possession of a title, origin, and connections, than by his successful university career, business-like habits, unblemished reputation, and intimacy with the mercantile world. Unfavourable, at first, to the progress of working-class power in the state, he joined his fortunes with those of the Conservative interest, and entered the reformed House of Commons, in 1832, as member for Newark. But although he sat on the benches opposite to those occupied by the popular

* The subject of Co-operation will be treated in the next number of the WORKING MAN.

party, he speedily gave evidence of the possession of an impartial and inquiring mind, which, like that of his great leader—the late Sir Robert Peel—learned to act on his own convictions, rather than upon those of party.

When Sir Robert Peel brought forward his celebrated free trade measures, he found Mr. Gladstone one of the most earnest and active of all his supporters; and when, amongst the tears and lamentations of a people to whose homes he had brought the inestimable blessings of cheap bread, Sir Robert Peel died, William Ewart Gladstone took up the sword of his departed chief, and prepared to fight anew the battle of free trade which had been so auspiciously commenced. From that time, Mr. Gladstone began casting off, one by one, the party shackles which had hitherto restrained the full exercise of his magnificent energies, and identified himself more and more with the progress of the great Liberal body, to whose exertions the working classes of this country are so largely indebted. As he progressed in political experience, the distrust originally felt by Mr. Gladstone towards the working classes gradually melted away, to be replaced by a frank and unreserved confidence in the earnest love of self-help, and steady upward progress, which they have so often displayed. Brought by the force of circumstances, perhaps, more than any other modern statesman, into direct contact with working men—the very pith and marrow of the industrial classes—he has learnt the large amount of kindly feeling, honesty, and loyalty, hidden beneath their rough, plain-spoken exteriors; and, possessed of this knowledge, he has also learnt to admire and respect the men who with their hands work as hard, if not harder, than himself with his brain, to promote the strength, power, and glory of their common land. The working classes know Mr. Gladstone, and he knows them; and in this intimacy between the two, this mutual desire to assist in each other's aims and aspirations, may be traced the germs of that time when class shall cease to war with class, and rich and poor, peer and workman, squire and peasant, shall labour lovingly and ceaselessly with each other in carrying out the great principle of social progress: *the Greatest Happiness of the Greatest Number.*

RIGHT HON. W. E. GLADSTONE, M.P.

The Story of a Wood-Carver at St. Paul's.

THE following is a copy of a manuscript preserved in the British Museum. It is a letter written by an ingenious country lad, Philip Wood, from London, in 1699, to his "sweet mistress, Hannah Haybittle," only daughter of Ralph Haybittle, at Sudbury, describing the means he adopted to procure employment as a carver at the works in St. Paul's Cathedral, then erecting by Sir Christopher Wren, and runs thus:—

No. 9, Ivy Lane, London,
September 3, 1699.

Dearest Hannah, my sweet Mistress,—Pray God that this may find my own sweet hearte and lyfe well. I hope that James Herbert put into your hands one letter which I sent. I gave him the letter myself, and he promised most faithfullie to find occasion to conveye it to you. I know, my dear Hannah, you think it both hard and wrong to hide anything from the knowledge of so kind a father as yours. The waggon returns into London on Tuesday, so I went to the yard in Bishopsgate, and waited for it to arrive. At last I heard the bells; and Jim Herbert, as he turned under the gateway, smiled at me pleasantlie, and he said, "Wait a bit, young chap, I have somewhat to say to thee." After a while he came to me, and told me how he met you walking on the croft, with your maid Susan, and how he contrived to give you my packet unseen of her. To think of such craft under a waggoner his frock! But no letter from you. He says that you looked well, and seemed happy to receive my letter, and I am contente. But had you no opportunitie to write one line? I know how it is, dear Hannah; you dislike any artifice. Indeed, it is hardly right for me, who owe so much to your good father, even the abilitie to write this, as he sent me, a poor orphan, to the free school,—to tempt you in this matter.

I can no longer put off telling you the good news. God has, indeed, been good to us. Little did I expect such happiness when I left Sudbury last May. That morning, when I looked for the last time from the hill, I thought my hearte would surely burst, and at one moment I was inclined to turn back; but then came to my mind what kind neigbbour Smith should say she heard your father say about London; so I plucked up courage, and walked very fast over the Tye. Dear Hannah, it is a very sad lyfe to be alone in a great city. At Sudbury, I did contrive to see you, though at a distance, every day; and I could walk in the pleasaunt fields, and think about you, and read Master Shakspear his plays which you gave me, and which trulie have been, latterlie, with my Bible, my onlie comforte. In the evening I could pass your house to catch a glimpse of your shadowe on your casement, or to hear your spinnet sounding; and sometimes I found the neighbours showing the carvings to a farmer or two who had been at the market; and it was sweete to my poor vain heart to hear them tell how the rich merchant, Master Haybittle, retired from London to his native town, and bought a house, and employed a poor young man who showed some taste for such matters, to carve upon the woodwork, elephants and lions, and other wonderful beasts from the distant lands where he used to send merchandise. Then all said the carver must go up to London, and become a great man.

Well, I got to London, but no one would employ me, and my little pittance of money got lower and lower; and I used, for want of employment, to go to the Churchyard of St. Paul, and watch the building, which will certainlie be one of the wonders of the world. Suddenly it struck me one day, that they would surlie put into such a grand building, carvings, such as I have often seen at Melford and the other churches; and I spoke humblie to the foreman, but they repulsed me, saying, "We want no hedge-carpenters here." Nevertheless, I went day after day to look on at a distance; and a week yesterday, as I stood as usual, in great admiration, a gentleman approached, with papers in his hand, and he talked with the workpeople; and at last his eye fell on me, and he said to the foreman, "What does that young man want? I will not have any person about here unless they have business." And the foreman answered, "Please you, Sir Christopher, he is a country fellow, who troubles us to give him some of the carving work to do." On this the gentleman, who I then knew to be the great architect, beckoned me towards him, and said, "Friend, you want carving work. What have you been used to carve?" Hannah! indeed you will hardly credit it, but I was so confused that, forgetting all but what I earned my bread by whilst I was in the country, I answered, stammeringlie, "Please, your Worship, Sir Christopher, I have been used to carve troughs." "Troughs," said he, "then carve me, as a specimen of your skill, a sow and pigs; it will be something in your line; and bring it to me this day week. I shall be here." On which he went away smiling, and all the foremen and workpeople burst into loud laughter.

I do not know how I reached my lodgings, but when I did I throwed myself on the bed, and shed bitter tears, and reproached myself for losing such an opportunitie of explaining what I had done on your father his house.

In the evening the good Quaker woman, whose back-garret I rent, came up-stairs, and, entering my room, said, "Friend Philip, I have not seen thee since morning; I feared thou were ill; see, I have brought thee some broth." But I could not touch it; so she said, "Tell me, I pray thee, thy trouble; it may be I can help thee." So I told her, and she said, "Thou art wrong, for if the man who is building that great steeple-house requires such and such a thing done, why, if thou really hast skill, it will be showed as well in that as in any other matter."

Her words were comforting to me, and I sat up on the bed, and ate the broth; and then I took my last guinea, and I went out and bought a block of pear-tree wood, and worked at my task continually; and yesterday morning I dressed myself in my best, and wrapping it in an apron, borrowed from my landlady, I went to the building. The workpeople jeered me, and pressed very much that I should show it to them, but on no account would I do so. I waited two or three hours, and then it was rumoured that Sir Christopher Wren was arrived with a party of the quality, to whom he was showing the building. At last he and the rest passed where I stood, but when I would have gone forward to speak with him, the foreman and others would have hindered me, saying, "This is not the proper time; you may see that Sir Christopher is otherwise engaged." But necessity made me then bolder, and I said, "He himself appointed me this morning," and I pressed through them. Directly his eye caught me, he beckoned, and I went towards him, and I bowed and undid the apron, and presented the carving to him. For a minute he held it in his hand—Oh! deare Hannah! what an anxious minute! and then said, "I engage you, young man; attend at my office to-morrow forenoon." Then he walked on with the party, still holding the sow and pigs in his hand; but when he got a little distance, he turned round and said, "Wait until we pass back." So I waited; and when they returned, Sir Christopher came up to me, and said, "Mr. Addison" (I think he said "Addison" or "Addington") wishes to keep your carving, and requests me to give you ten guineas for it." I bowed, and then he said, "I fear I did you some injustice, young man; but a great national work is entrusted to my care, and it is my solemn duty to mind that no part of the work falls into inefficient hands. Mind and attend me to-morrow." So I bowed, and ran home, and my kind landlady was also overjoyed.

This morning I have been at the office, and I am indeed engaged to do carving in this most wonderful building.

I leave at your discretion to acquaint your father of this matter, and if you would write to me only one line, it would increase the happiness of, Dear Hannah, your faithful servante untill deathe, PHILIP WOOD.

It is added,

The following notice of Philip's further career appears in the Report of the Commissioners of Public Works, respecting the building of St. Paul's Cathedral.

Philip Haybittle, subpoened from Sudbury, Suffolk,

deposed that he received certain sums of large amount as per receipts, given during the years 1701-2-3-4-5-6-7, for carved work in the Cathedral Church of Saint Paul. On inquiry from their honours the Commissioners, respecting the difference betwixt his name and the name on the various receipts, the said Philip Haybittle deposed, that he married Hannah, only daughter of Ralph Haybittle, some time a merchant in Cheapside, and by the terms of the will of his said father-in-law, he was obliged to change his name.

What We did with Ourselves on Boxing Day.

WE who work hard, and generally find that we have quite enough to do with our time and our money, do not have many holidays. Five or six a year—Good Friday, Easter Monday, Whit Monday, perhaps a couple of days at odd times, just to take our wives and little ones out to have a peep at the green fields, and Boxing Day, are about all we indulge in. A holiday is not worth having unless there is a satisfaction in it which lasts the week out; and it is poor work to lose a Monday in dawdling about, and best part of the Tuesday because we are mad with ourselves for what we did the day before, and then be looking forward all the rest of the week to a short Saturday night. But when we have earned a holiday, we enjoy it like we do our Sunday's dinner, knowing that the leg of mutton and batter-pudding are paid for, and are fairly our own; and enjoy it in the same fashion, too, with our smiling wives and merry boys and girls to share it with us, and no headache afterwards.

It is natural to suppose that there always will be two sorts of people in the world—those who make the best of things, and those who make the worst of them. At any rate, some men who are not very clever at anything else show a wonderful deal of ingenuity in making a holiday about as great an injury to themselves and as great a nuisance to others as possible; while, on the other hand, there are those who contrive to make it just that sort of day which one would be disposed to put a mark against in the almanack, so that it might be called to mind as a really happy day.

Now, on Boxing Day, for instance, there was very little business done anywhere. In the London streets there were nearly as many shops closed as were open, partly because tradesmen knew that, if they kept behind the counter, their chief occupation would be to tell dirty little boys, who teased for Christmas-boxes, to "get out before they were turned out," and partly because the shopkeepers wanted a holiday for themselves. Some of our men made up their minds to enjoy themselves thoroughly in a respectable sort of fashion. They would go to the British Museum, or the Zoological Gardens—show the children the stuffed hippopotamus and the gorilla, the light humming birds and the birds of paradise with the wonderful tails, and those great stone statues which came from Egypt and Assyria, and were the very things they had been reading about at school on Sunday; or, in the gardens in the Regent's Park, to see the funny monkeys catch hold of each other's tails, the tigers and hyenas walk backwards and forwards in their dens, and the seal jump out from his little pond to catch pieces of bread. After that we would go to the National Gallery, or the South Kensington Museum. Most of us preferred the latter, because the pictures seemed a little too grand for us. We know they are very clever, and cost a great deal of money; and here and there a sweet face of a woman or child peep out at us from the canvas, and the eyes seem to say, "There is more in art to make men better and wiser, than you think of, till you have opened your minds a little more to its teachings;" or a quiet little bit of landscape, with the sun beaming in long lines of light through the twisted branches of old trees, and giving a sort of golden tinge to grass and flowers, and cows knee-deep in winding streams, that make us think, "You, too, are a working man, Mr. Painter, and your work is durable too, though neither of wood nor iron, for you have somehow preserved the face of nature as it appeared to us when we were very little children, and things looked more beautiful than they do now."

But most of us, as we said, liked Kensington best. There are pictures there too, and capital ones they are. We did laugh at some of Webster's, and Leslie's, and Frith's; almost fell in love with the graceful girl so anxious about the colour of her wedding gown; and as for Turner, it seemed as if, after he had painted the portrait of Phœbus Apollo slaying the Python, he had made him captive, and employed him to mix his colours for his later works, so full are they of sunlight, till at last poor Turner seemed to be dazzled with excess of light, and to have floated into darkness with the red sun blazing behind him, like his own "Temeraire." But the models, the ships, and the machinery, and the astronomical instruments, and the old carved furniture, and the glass and porcelain, and the beautiful textile fabrics, and the school-books and maps, pleased us most. How the boys did admire the men of war and the frigates! and how we did all enjoy the rest in the refreshment-room, and the buns, and the sandwiches, and the ginger-beer, and the sparkling lemonade, which, as it was holiday-time, we thought ourselves entitled to indulge in!

The word "we" has a double meaning. It stands for our own particular party, and also for our class generally. While some of us—that is, many thousands—tried to learn a little while we amused ourselves, and explain to one another what was the ultimate use and value of each one's special handiwork, and show, for instance, how the great engines among which we had been toiling all the year were fitted into their places, and what they had to do when they were there, there were, it is sad to say, thousands more who seemed to think that the whole use and value of a holiday was that it gave an excuse for getting drunk—for wandering about from one publichouse to another; for "standing drains" and "having pints;" for crowding and squeezing in at narrow doors, among dirty, quarrelsome, unwholesome sorts of people, who wrangled, and jangled, and smoked, and gulped down unnecessary and most hurtful drams, and said "Come, now, old fellow, since you have stood your pint, I'll stand mine—shall it be cooper or old ale? or, I say, old fellow, have a drop of rum or something?" And then they tumbled out, and said, "Come along, old woman! 'Slap! bang! here we are again!' Boxing Day only comes once a year, missus; and what do you say to two pen-n'orth on the strength of it?"

More than forty thousand of us went to the Crystal Palace; and a great many of us generally do go there whenever we take a holiday. Sometimes we go in vans, and wear green scarfs, and carry wands and flags, which do not at all hinder us running up and down the slopes, and having a jolly good game in the grounds till the fountains begin to play, and we leave off to look at them. But that is in the summer; and now, on Boxing Day, it is cold and damp out of doors, so we keep under the glass roof, and there we find plenty to amuse us. The shrubs, and the hanging baskets, and the statues, the Pompeian Court—rather cold-looking to-day—and the glittering Alhambra Court, the fountains and the fish, the big Egyptian giants and the Assyrian bulls, are all there; but there are other attractions, too, which draw thousands to look at them.

But how did we get to the Crystal Palace, and how did we get back again? Several of the railway companies undertook to arrange that matter for us, and in some respects a pretty mess they made of it. We learned elementary arithmetic at school, and many of us have got a little way farther by this time; but it does not require decimals or logarithms to work the simple sum, which seemed to be too much for railway managers on Boxing Day: if one carriage can hold so many, how many carriages will be required to take a certain number? That seems to be easy enough, but it could not be managed on that particular day. Perhaps Christmas-time is not favourable to arithmetic; but if our wives had made the puddings a great deal too big for the saucepans, we should have thought they ought to have known better. Yet that is just what was done at the railway station. The crowds on the platform were the puddings, and the trains were the pots, which could not hold more than half of the number who had paid for tickets. It was no use saying politely, "Please, don't push!" or unpolitely, "Now, then, stupid! keep off my toes, can't you!" Everybody pushed and fought their way into the carriages, and when the train was at last started, there were two or three hundred disappointed people left behind.

But we got to the Palace at last, and we got home again, though rather too late to be comfortable, seeing that work began again the next morning, and that if there is one thing more than another that spoils a holiday, it is feeling the next day that, instead of refreshing us, it has made us less willing to set to work as we ought to do.

The theatres were crowded, as they always are, on Boxing Night. Very wonderful is the skill of scene-painters and stage-managers, and many of the set scenes are marvellously beautiful. Very few of the audience can form any idea of the vast amount of applied science and mechanical skill and contrivance brought into play to produce the brilliant effects so much sought after in pantomimes. But many working men do not like theatres, and they have good reason for the objections they take. As to the music halls, with their mixture of slang, comic songs, good music, tumbling, and gin-and-water enjoyment, why, we, at least, think that they are better avoided on Boxing or any other night. So many of our shepmates, we are glad to say, finish their day's pleasure as early as they can, and then, with clear brains and happy hearts, lay their heads upon their pillows, conscious that they have temperately enjoyed a fair holiday, and made the best of Boxing Day.

COME WHOAM TO THE CHILDER AN' ME.

[EDWIN WAUGH, who is regarded, not without reason, as a sort of Lancashirs Burns, has published several volumes of poems well deserving to be known to working men. From one of Mr. Waugh's volumes we take the following poem, already a household song in Lancashire, as a happy example of power.]

Aw've just mended th' fire wi' a cob;
Owd Swaddle has brought the new shoon.
There's some nice bacon collops o' th' hob,
An' a quart o' ale-posset i' th' oon;
Aw've brought thi top cwot, does ta know,
For th' rains comin' deawn very dree;
And th' har'stone's as white as new snow;
Come whoam to the childer an' me.

When aw put little Sally to bed,
Hoo cried, 'coose her feyther weren't theer,
So aw kiss'd th' little thing, an' aw said
The'd bring her a ribbon fro' th' fair;
And aw gav' her doll, an' some rags,
An' a nice little white cotton ho';
An' aw kiss'd her again; but hoo said
At hoo wanted to kiss *thee* an' o.

An' Dick, too, awd sick wark wi' him,
Afore aw could get him up stairs;
Thae towd him thaed bring him a drum,
He said when he're sayin' his prayers;
Then he look'd i' my face, an' he said,
"Has th' boggarts ta'en hould o' my dad!"
An' he cried whol his een were quite red—
He likes the same weel, does yon lad!

At th' lung-length aw geet him laid still,
An' aw hearken't folks feet as went by;
So aw iron't o' my clooas reet weel,
An' aw hanged em i' th' maiden to dry!
When aw'd mended thi stockin's and shirt,
Aw sit deawn to knit i' my cheer,
An' aw rayley did feel raither hurt—
Mon, aw'm *one-ly* when theaw artn't theer.

"Aw've a drum and a trumpet for Dick;
Aw've a yard o' blue ribbon for Sal;
Aw've a book full o' babs; an' a stick
An' some bacco and pipes for mysel;
Aw've brought thee some coffee an' tay—
So thae'll *feel* o' my pocket, thae'll *see*;
An aw've bought tho a new cap to-day—
But aw olez bring summat for *thee!*

God bless tho, my lass; aw'll go whoam,
An' aw'll kiss thee an' th' childer o' reaund;
Thae knows, at wherever aw roam,
Aw'm fain to get back to th' owd greawnd;
Aw can do wi' a crack o'er a glass;
Aw can do wi' a bit ov a spree;
But aw've no gradely comfort, my lass,
Except wi' yer childer and thee.

Working Men's Towns on the Upper Rhine.

THE success that has attended the establishment of the workman's towns at Mulhouse, undertaken with praiseworthy zeal in 1853 by a private company, is well known. A generous contribution on the part of the Emperor Napoleon favoured the enterprise beyond all expectation. Imitating the example set by Mulhouse, the town of Guebwiller, and other manufacturing localities of the Lower Rhine, have established workmen's towns. The Industrial Society of Mulhouse has published in its Bulletin a remarkable report by M. Penot upon these useful and philanthropic creations. Doubtless, a few extracts from this conscientious work are calculated to interest our readers.

The plan the Mulhouse Society proposed to itself to carry out was to construct houses adapted to the

accommodation of a single family, and to sell them at cost price to the working men, granting them long terms of payment, extending to fourteen, or even sixteen years. When the houses do not immediately find purchasers, they are let. The sale of the houses is made on certain conditions: the object of which is the maintenance of order, cleanliness, and a certain external uniformity; but without putting any unpleasant restraint on the purchaser. No workman is eligible to the purchase or hire of a house unless he engages to send his children to school.

A deposit of from £10 to £12, according to the value of the property, is required upon effecting a purchase. The remainder of the purchase money is paid in monthly instalments of fifteen shillings to a pound, until the whole amount is liquidated. If a working man desires to become the purchaser of a house before he has saved the £10 or £12 required as first deposit, he may still obtain possession of the house on the sole condition of increasing the amount of his monthly payments until the increase amounts to the sum required as a deposit. It is to be remarked that the sale of the houses has always been progressive: of the 700 houses constructed, 614 had found purchasers by the 30th of August last, and 112 are already paid for in full; and many of the houses constructed in 1853 and 1854, during the first two years of the building of the town, require the payment of but very small sums to become free from mortgage. When any unforeseen circumstance renders it impossible for the purchaser to continue his payments, facilities for release from his liability are freely afforded him. This transaction is always made a pleasant one; for the buyer is then regarded as if he had been merely a tenant, and the surplus of his monthly payments is restored to him. As for his first instalment of £10 or £12, it is returned to him in full, with interest; for it has not been employed, as the act of sale is always delayed until the certainty of the purchase being completed is placed beyond a doubt.

Independently of the houses intended for sale, a large establishment has been built, which is distributed into rooms suitably furnished, and let to unmarried workmen at the low rate of five shillings a month. These lodgings are clean and wholesome, and there is a common room, warmed and lighted in winter, to which all the lodgers have access during their leisure hours.

Various models have been adopted in the construction of the houses; but each is provided with a garden, the aggregate of which is a great advantage and pleasure to the whole community. Each occupant of a house can grow a portion of the vegetables required for his table; and if they attach a high value to them, it is on account of the agreeable occupation their cultivation affords to themselves, wives, and children.

This may be considered as a public effort for providing working men with suitable homes. The private efforts made in the same direction are happily numerous and extending. We proceed to describe the paper factory at Essonne, which may be considered as the type of the organisation of labour in France, where the proprietor stands in the relation of the father of a family, and not in that of an usurious taskmaster, as is too frequently the case. M. Gratiot well knows that, besides the performance of a duty, there is a great advantage to him in making his work-people contented and happy, and consequently attached to his service. What he has done to this end is to build a workman's town; not a sad and gloomy collection of barracks, but pretty, white houses, well-ventilated, surrounded with trees and flowers. Each dwelling consists of three rooms and a cellar. It costs the working man five francs a month during the first two years; four, three, two, and one franc during the four other years. At the end of the sixth year the house becomes his own property, provided he continues to work in the paper-mill. A garden, on the banks of the river, adjoins the dwellings. Large, well-warmed refectories, or, as we should call them, dining-halls, are provided for the unmarried—one for the women, the other for the men. Large cellars are provided for the storage of groceries, &c., which are bought wholesale, and retailed at cost price. A market is held in the central square of the town twice a day, which enables the workmen to supply themselves with provisions without waste of time. Gratuitous baths, to the number of twenty a day, and four fountains, of a slightly ferruginous water, of agreeable flavour, supply the working-men's town. An asylum-school has also been established. The school and the hall of the contiguous asylum are wholly gratuitous; the first comprises fifty children, the second about seventy. Moreover, adults, in very large numbers, come of an evening, after their day's work is over, and learn reading, writing, and arithmetic, and receive religious instruction. A neat chapel forms an important feature of the town, in which prayers are offered up every evening at eight o'clock, and full service on Thursdays and Sundays, by the vicar of Essonne. Madame Gratiot has her organ conveyed to the chapel, and plays herself an accompaniment to the psalms and hymns sung by the young women employed in the paper-mills. A good many of the work-people of both sexes attend the chapel, and join in the service.

Four Sisters of Mercy direct the asylum, school, and infirmary. A physician is attached to the establishment, who attends the work-people gratuitously, and supplies medicine free of charge. Even in the event of death, M. Gratiot does not abandon his workers. He follows them to the grave, and pays the expenses of their funeral.

The paper-mill of Essonne is a model establishment, in which the relations between employer and employed are well understood. The working population, moral and happy, dwelling amid a charming landscape, is full of health and vigour. Long may it prosper!

A Saturday Sermon.

If there could be a law restricting manual labour to six hours a day, and securing constant and ample employment upon those terms, with increased wages to the workman and higher profits to the capitalist, who would not favour it with all his heart? So if there could be a law by which disease could be abolished, and the heat of the dog-days and the cold of midwinter mollified, who would be so inhuman as to oppose it? Yet, one of these laws is as practicable as the other. All the laws of society are effective only so far as they re-enact the higher law of Nature. When they are opposed to them society pays the penalty of suffering. It is useless to legislate against the attraction of gravity or of cohesion, or to attempt to re-distribute the oxygen and nitrogen of the atmosphere.

The laws of political economy are not less absolute than other laws. They are not determined by our wishes and hopes, but by the actual condition of society. The rate of wages will always depend upon the demand for labour. Capital will always invest itself where it can count upon the highest return. These are axioms or indisputable truths. That capitalists are often unjust, and labourers often oppressed, is true; but that fact does not affect the great law of the relation of wages to the supply of labour and of capital to profits.

Therefore, in the legal regulation of the labour question, we must always bear in mind the inflexible laws which we do not make, and which control those that we do. But, fortunately, political economy, like all other sciences, is capable of development. There are truths already discovered, but there are others which may yet be ascertained. For instance, the exact amount of manual labour, measured by time, which may be most effectively performed by the average labourer under certain conditions of climate and other calculable circumstances, is a fair subject of investigation and experiment. But when it is determined, the result cannot be disturbed. It must be accepted and treated as a truth.

Now labour is a commodity like cotton or corn. Its price must depend upon its supply. Where the supply is greatly in excess of the demand, the price will inevitably be low—where it is inadequate, the price will be high. Every man can understand that proposition. Its truth is not disturbed by the natural desire of every man not to be overworked, and to have time for education and recreation. Suppose that the city of New York should make a law restricting the working day to four hours, upon the principle that, if every man in the world did his fair share of the work of the world, four hours would be enough, what would be the consequence? The demand for labour in the city would cease, and, with its ceasing, wages would decline. And how could this result be avoided? Would you pass a law compelling employers to pay the same wages for four hours' work that is elsewhere paid for ten? That you might do, but the result then would simply be that capital would emigrate. Would you undertake to prevent its removal by penalties? Certainly you would not; and even if you did, and enforced your laws, the inevitable consequence would be the destruction of capital. You may forcibly compel a man to remain in one spot, but no law can force him to use his sagacity to his own disadvantage.

Must the labourer, then, be for ever a mere drudge? and shall the great mass of mankind, who must always live by the work of their hands, be hopelessly debarred from intellectual expansion, the delights of art, and of intelligent leisure, which we call mental culture? Surely not, unless the world is a total failure, and the deepest human faith a lie. But there are no short cuts to happiness. The British labourer is to-day a man who is, in a certain sense, and without any individual responsibility, defrauded of many of his birth-rights as a man. But can Parliament legislate him out of poverty and ignorance into comfort and intelligence? The British labourer drudges fourteen hours a day for a pittance. Why? Simply because the supply of labour is in that excess of the demand. Let the labourer see that in this country or elsewhere he can get higher wages for a shorter day, and he will come here. The result would be that wages would ultimately rise in England and fall in the United States.

Where, then, is the daybreak? In what direction lies hope? It lies, first, in the growing intelligence of mankind; and, second, in invention and science. As we come to see that the comfort and security of every member of society depends upon the general welfare, selfishness will be checked, or, if you choose, refined, while invention will at once multiply and facilitate labour. The cure for all social evils lies in the moral elevation of society, in the increasing spirit of fraternity, and co-operation. And that is as sure as it is slow.—*New York "Journal of Civilisation."*

BLEACHING VEGETABLE FIBRES.

Chlorine exercises a very destructive action upon the colouring matter of vegetable substances, by which it lays bare the fibre, and, consequently, bleaches it, for the reason—1. That it decomposes the water with which it is moistened and impregnated. 2. That it seizes upon the hydrogen set at liberty and forms hydrochloric acid. 3. That it liberates oxygen, which combines with the organic colouring matter, bleaching at the same time it oxidises it. This chemical action takes place only in the presence of water, for dry chlorine is almost without action upon the colouring matter of anhydrous tissues, and then we bring the action of the solar rays to bear. In this case the chlorine is substituted for the hydrogen of the coloured molecule, and forms hydrochloric acid at its expense, which immediately reacts upon the colouring matter of the coloured fibre, and completely destroys it.

An aqueous solution of the alkaline hypochlorites, or of the alkaline earths put into contact with the colouring matter of the vegetable fibre, moistened with water, produces the same effect as chlorine. If we treat the decolouring compounds of chlorine by acids, the result is chlorine and hypochlorous acid; the chlorine being liberated and placed in contact with water, decomposes it, producing oxygen and hydrochloric acid, which reacts anew upon the hypochlorous acid, converting it into water and chlorine, and renewing the preceding decomposition.

It is, therefore, proved—1. That air, decomposed into its two elements, exercises, through its oxygen, a decolouring action upon the colouring matter of the vegetable fibre. 2. That chlorine and the hypochlorites act, strictly speaking, only mediately and indirectly upon the decolouration of the fibre, and serve, in the bleaching only as an element for the decomposition of the water. 3. That the reaction of chlorine and the hypochlorites upon the water with which the articles to be bleached are impregnated, may be compared with the action of the chemical rays of the solar spectrum, since these latter decompose in the same manner the water with which the said articles are imbued, by bleaching and destroying their colouring matter through the oxygen they liberate.

Bleaching in the meadows, or by means of solar light, may thus be completely superseded by bleaching with chlorine or hypochlorous acid; while, in the latter method, no secondary actions are developed, which generally result in the destruction of the raw material itself which it is desired to bleach.

New Inventions and Patents.

IMPROVED LAMP FOR MINERAL OILS.

The mineral oils known as paraffine, petroleum, and cazeline, possess such valuable qualities as sources of light, that it has ever been a source of regret that their burning is attended with several great inconveniences. There is great difficulty in trimming the lamps as ordinarily constructed, and they are liable to smoke, and fill the room with soot and an insufferable odour, if the oils are imperfectly burned. The soot and bad smell never arise except through imperfect combustion of the oil, however inferior or *impure*, even, that may be, provided the lamp in which it is burned combines the two conditions essential to the production of a good light—namely, first, the development of sufficient heat to rapidly effect the volatilisation of the oil, and convert it into a gaseous vapour; secondly, the contrivance for a supply of air sufficient to burn the vapours formed: we shall then obtain a light at the same time brilliant and inoffensive.

Impure oil leaves a solid residue or crust on the wick, which necessitates frequent trimming and renewal, in order to restore the capillary attraction; but all the volatile parts being decomposed by combustion, or converted by it into hydrogen and carbonic acid—two completely inodorous gases—absolutely nothing will be produced of an unpleasant odour.

But if, with the abundant distillation of vapour spoken of, the quantity of air, and, consequently, of oxygen, supplied to the flame be not in the requisite proportions, then a portion only of the vapour will be burned. The remainder, being conveyed into the atmosphere by the current of burned gas, naturally spreads through the apartment, and impregnates its atmosphere with a penetrating, insufferable odour; or else a dense and acrid smoke arises, which deposits itself upon everything in particles of smut, or lampblack, which is a sublimated carbon.

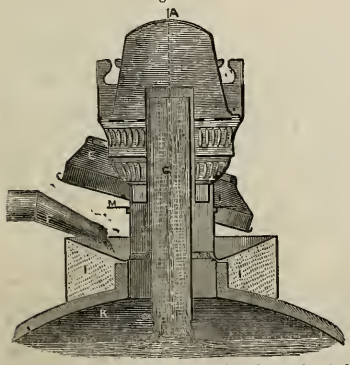
In a given burner, constructed on rational principles, we must require of it only the quantity of light it can properly supply, and neither more nor less. If the light be below the normal volume, the carbon only is completely burned, the other vapours but partially so. Above this volume, then, the other vapours are wholly burned, while a considerable quantity of lampblack is formed. This is what happens with an ill-regulated burner, and with a badly cut, uneven wick, or one cut in the usual manner for lamps burning vegetable oils—that is, quite level.

In fact, the mineral oils being very rich in hydrocarbons, they demand much less height of wick in burning; besides, as they are much lighter, they obey capillary attraction more readily. Hence they exercise greater differential effects, according as circumstances happen to influence them.

These influences are apparently very trifling, but their effect is great. Thus, the borders or edges of a flat wick, such as is generally adopted, being held, in a measure, between three sides of the wick-holder, while the middle of the wick is in contact with two sides only, it happens that the oil flows more freely to the edges than to the middle of the wick, producing a horned flame—a defect favoured also by the freer access of air upon three sides of the flame. The least unevenness on the upper edge of the wick-holder, the slightest prominence on the surface of the wick, a small foreign substance deposited thereon, a little mushroom—the merest nothing, in fact—is sufficient to cause irregularities in the flame. Every one who burns mineral oil knows how difficult it is to trim a wick that will give a round flame free from horns—the only one that will yield an agreeable and economic light. Many persons have given up using these oils solely on account of this difficulty, notwithstanding the undoubted advantage of this light over all others.

Frequent attempts have been made to overcome this obstacle, but none have succeeded, and the only *expedient* found to remedy the inconveniences of trimming is, not to cut the wick at all when once it is in good condition. Therefore, it is burned several days in succession without being trimmed, and when it has become hard and concrete by carbonisation and deposits of crust. the wick, instead of being cut, is broken off with the fingers, and made even by rubbing it at the top of the holder, either with the finger or a piece of rag. In this way the wick may be renovated to the same condition as it was in at first. Let whatever precautions be taken, it still happens that the filaments torn from the wick produce points in the flame, and cause the consumer to despair.

Fig. 1.



Mr. Tremeschini, well known by his electro-chemical researches, offers a new burner to public attention, which appears to merit what publicity we can give it, inasmuch as it radically suppresses the inconveniences noted above.

Our engravings will be intelligible to all who are engaged in the construction of lamps of this kind. To others, and especially to the mere consumer, we have to state that the improvement consists chiefly in substituting for the continuous wick a double wick of cotton wool, C, dipping into the oil, and terminating at its upper end in two pads, each formed by a tuft of cotton folded upon itself. These two pads are formed like two lips, between which the tongue is inserted. Better than any other phrase, *to draw the tongue* expresses the function of this tuft. It may be termed alimentary, or feeding, in relation to the independent wick, as shown in Fig. 3, and which is the real wick of the lamp. It may also be seen occupying its place, under the same designation, in Fig. 2. This double tuft is contained in a square copper tube, which is made to move up and down within a small space in a similar tube, which serves as a holder to it. The slight motion required is produced by the lever, H. Between the two lips, raised to their highest, and held open by their mutual spring, the alimentary wick, prepared beforehand, is inserted, as a provision. It is nothing but a similar simple tuft of cotton wool, folded, flattened, and held together by a hand of incombustible paper.

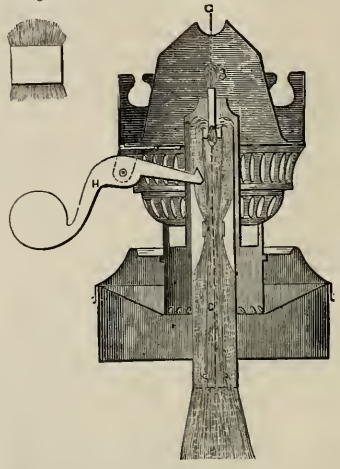
The wick, as may be seen, is very short, and arranged at the top in the shape most favourable to the production of a good flame. When lighted, a very slight movement of the lever, H, suffices to regulate it to a given point, and so obtain a good light, the intensity of which may be varied within certain limits—that is to say, between the point where the gas begins to burn, and that at which the flame begins to smoke.

The range comprised between the two limits is much greater in the new burner than in the old ones, which is due not only to the perfect form of the wick, but also to the manner in which the air is distributed, from having access round the wick and to the interior of the distilling tube in the centre (Fig. 1). This arrangement may not be entirely new, but it is, at least, much improved in the new burner, so as to yield a result not hitherto arrived at.

It will be understood that the independent wick is replaced when used up, *but never trimmed.* And as it is made a regular and special object of manufacture, costs but twopence a dozen, and that one will last a week burning six hours a day, we may conclude that the independent wick is the true solution of the difficult problem of wicks for mineral oils. It gets rid of trimming, of the inconvenience of the screw, which lets the woven wick run down when it is too thin, and will not turn at all when the wick is swelled with oil. Let us not omit to remark also, that, the tuft wick being always of the same length, the suction, contrary to what takes place in the woven wick, is the same at all times.

To these improvements connected with the wick, Mr. Tremeschini adds another no less important, which concerns the safety of the employment of mineral oils.

Fig. 3. Fig. 2.



We do not admit that the mineral oils are so dangerous as frequently represented. Still, it cannot be denied that they are much more inflammable than the vegetable oils, and susceptible of taking fire at a certain temperature, which varies with their density.

It may, therefore, happen that a lamp which has been kept burning for a long time, may become so heated that a small quantity of oil remaining at the bottom will take fire if a burning body is brought near to it; but it must be on the condition that air has free access at the same time. These accidents, however, occur but seldom; but it is sufficient that they do occur, to make it a duty to endeavour to avoid them.

Now, it may happen that after a long evening, the oil being nearly, but not quite spent, it becomes necessary to replenish the lamp. Prudence suggests the propriety of lighting another lamp, or a candle kept some distance away from the exhausted lamp, then extinguishing the latter, and lighting it again after it is filled. But these precautions are not always taken, and the lamp is refilled while still burning. By pouring the liquid oil into the lamp, the heated vapour is driven out, comes into contact with the flame, and explosion ensues.

The new burner we have described above is so constructed, as to render an accident of this kind impossible. When properly arranged, the flame is isolated from all possible communication with the reservoir, and these conditions remain unaltered at the time the oil is poured in. A simple independent cover being lifted, displays a cup pierced with holes, communicating with the reservoir, which is the top of the stand, or foot. Into this cup the oil is poured. Meanwhile, no communication is possible with the flame quadrupally separated from the reservoir by 1, a diaphragm inserted at M; 2, the cover, E; 3, the base of the reservoir; and 4, another internal diaphragm, performing the same office as the wire gauze in Sir Humphrey Davy's safety-lamp.

We are of opinion that the objections to the use of mineral oils are now wholly removed by the independent wick, and security from explosion prevented by Mr. Tremeschini's lamp; and we hope they will receive that public favour to which the brilliancy and economy of the light they yield justly entitles them. The lamps, as usually constructed, are made much too low; the consequence is, that the light strikes painfully upon the eyes. It may be that these lamps are made low to avoid the risk of their being upset. The flame ought to be at least as high as the top of the head of a person seated at a table.

IMPROVED COTTON PRESS.—A new cotton press has been introduced, which may deserve the attention of shippers. It is called Ashcroft's patent compound press, and is alleged to reduce a bale of cotton of 600 lb. in about a minute to between 25 lb. and 30 lb. to the cubic foot.

General Information.

EXHIBITIONS.

THE METROPOLITAN AND PROVINCIAL WORKING CLASSES INDUSTRIAL EXHIBITION will be held at the Agricultural Hall, Islington, in August next.

THE CITY OF LONDON WORKING CLASSES EXHIBITION will be held in Guildhall, under the direction of the City Lands Committee and the Guildhall Improvements Committee. It will remain open six weeks.

HULME.—A Working Men's Exhibition was opened at the Institute on the 18th ult. Modest in its pretensions, but highly meritorious in its results. Fully four-fifths of the contents were the handiwork of working men and their wives.

SOUTH-EAST LONDON EXHIBITION.—This Exhibition will close during the present month: we shall then give a detailed account of its peculiar features and characteristics. It is gratifying to be able to state that this Exhibition has been exceedingly well attended, and it is expected that the pecuniary result will be quite satisfactory.

PARIS EXHIBITION.—The committee of the Universal Exhibition of 1867 has just decided that there shall be no days of admission gratis. The charge will be one franc, except on Friday, when it will be five. Persons who may wish to enter before 10 in the morning will pay one franc extra. The price of season tickets will be 100fr. for men, 60fr. for women, and 20fr. for children.

SOLDIERS' EXHIBITION IN INDIA.—A Soldiers' Exhibition was opened by his Excellency the Governor, at Poona, on the 1st of November last. It was a great success. His Excellency Sir Bartle Frere made the following observations:—He said that it was with great pleasure he attended on this occasion, as he looked upon an exhibition of this natnre as one which was of more importance than the mere sight of so many useful and well-made articles as were set out in the room. He looked upon it as a great step towards the amelioration of the position of the British soldier. He was old enough to remember the time when "to go for a soldier" was looked upon as going to ruin by the fellow villagers of the new recruit. He knew it was then the opinion of many men—and men for whose opinions he held a great respect—that a soldier should be a good fighting man, and nothing else; that the nearer you lowered him to become a mere machine, the more perfect soldier he became. Nothing was done towards his moral benefit. Long service was looked to as a necessity, and the poor worn-out invalid who returned to the home of his youth with many scars and a small pension, was neither in a moral, nor in any other respect, an incentive to the youth of his neighbouhood to join the ranks. Many present could corroborate his (Sir Bartle's) statements. The first thing which led to an alteration in such matters was the Crimean war. Then it was found that mere machines, however well they could fight, could not help themselves in other ways—they could not pitch their tents, or turn their hands to anything beyond the actual fighting portion of the business: fight they did, and that right well, but nothing more. Now it was to improve such a state of matters that, amongst other things, regimental workshops were instituted, in order that the men might be enabled to use their spare time to some profit. Short terms of service had the effect of making men who looked to the future consider that while they were learning and doing their duty as soldiers, they were forgetting the trade of their youth, which, in their more mature years, they would again have to look to for a livelihood. They were, therefore, anxious to leave after the first period of service had been got over, whereas, those were the very men whom Government wished to retain. Now, the workshops gave these men the opportunity they wanted. They could carry on their trade and improve in it, while, in the meantime, they were earning their pensions as good soldiers, it would assist them in their old age. Another benefit which Sir Bartle pointed out as likely to arise from the regimental workshops, was for the young—the boys of the soldiers. In England, who has not seen, in a village, some of the sharpest lads always hanging about the workshop of the carpenter, blacksmith, &c., and having a finger in the work? Here, where it was but too often the difficulty of the soldier parent to know what to do with his son, these workshops were the very thing; and he had no doubt the youth would soon cut their fingers in the one, or burn them in the other, as their fellow-country youths in England did. Sir Bartle enlarged somewhat more on this subject, and then tendered, not only his own, but the thanks of Government, to the members of the committee for what they had done to further this excellent object, and congratulated them on the success which had attended their efforts.

CLUBS.

MARYLEBONE AND PADDINGTON.—A club for this district has been recently opened at the corner of Newcastle Place and Edgeware Road, under favourable prospects of success.

WESTMINSTER WORKING MEN'S CLUB.—The fifth anniversary of this institution, which is situated in Duck Lane, near Victoria Street, and is so well known in connection with the philanthropic labours of Miss

Adeline Cooper, was celebrated by a public meeting. It was the last that will be held in the old house; but another is being built in Pye Street, Westminster, with a lodging-house to accommodate between 50 and 60 of the poor families who are being ejected from their dwellings, and are left literally houseless. The neighbourhood is very poor, and there is plenty of room for skill in adapting benevolent effort to its wants. Miss Cooper has established a penny bank, an enrolled labour loan society, a temperance society and sick fund, a barrow club, a cricket club, a labour registry, educational and Bible classes, a free library, &c. The club is open every evening, Sunday included, from 6 till 10.30, and the subscription is one halfpenny per week.

WORKING MEN'S CLUB IN SPITALFIELDS.—A handsome building, called the Bedford Institute (in memory of the late Peter Bedford), has recently been erected by members of the religious Society of Friends, in Wheeler Street, Spitalfields. The upper storey has been for some time used as a Sabbath-school, and for other kindred purposes. The ground floor was opened on the 18th ultimo as a Working Men's Club. A public meeting, presided over by B. Scott, Esq., Chamberlain of London, opened the proceedings. The chairman, and Messrs. Beck, Taylor, Stepheus, Nicholls, and Hine pointed out the advantages of these institutions for improving the condition of working men, and invited all present to co-operate in the present undertaking. After the meeting, the club-rooms were opened, and about seventy members were at once enrolled. The architect of this really fine building is Mr. William Beck, of Finsbury Circus, who has given his professional services gratuitously, and has laboured most indefatigably for the success of the undertaking.

STRATFORD WORKMEN'S HALL AND CLUB ROOMS.—The opening of these capital premises, which have recently been erected at considerable cost, and are of a most complete character, was celebrated by a *soirée*, under the presidency of Sir T. F. Buxton, Bart., M.P. The meeting was crowded to excess, and the proceedings were most interesting. After tea, practical and stirring addresses, interspersed with well-selected and admirably-rendered pieces of vocal and instrumental music, readings, and recitations, were delivered by the chairman and by Mr. Serjeant Atkinson, the Rev. H. Solly (Secretary of the Club and Institute Union), Ebenezer Clarke, Esq., and others; and the meeting separated after cordially passing the usual votes of thanks. It is exceedingly gratifying to be able to say that this excellent hall, which has cost about £1,400, was opened free from the grievous incubus of a debt, owing to the kind generosity of several of the contributors, and among them Mr. J. G. Barclay, Mr. T. F. Buxton, Mr. S. G. Buxton, Mr. J. J. Lister, Mr. S. Harrison, and others, who doubled the handsome donations they had already given. There is everything to inspire the hope that this institution, which has been so successfully launched, may be well appreciated by those for whose special comfort and good it has been created, and in whose hands its future mainly rests.

WHITTLESFORD.—A new hall and club has been erected in this town at the expense of Mr. Maynard, agricultural implement maker, and is presented by him, free of rent, to the working men of Whittlesford, for a Club and Institute. It is admirably arranged, by means of folding partitions, to combine all the ordinary rooms of a club with the use of a hall for concerts, lectures, &c., capable of seating 500 people. With the exception of an institution somewhat of this kind, established by Miss Hopkins at Cambridge, this is the first genuine Working Men's Club that appears to have been established in the Eastern counties, which have been rather behind-hand in this movement. It is to be hoped Mr. Maynard's liberality and the important meeting held at Whittlesford will help to wake them up a little, and cause many Working Men's Clubs to be established, where they certainly are much wanted.

BENEFIT SOCIETIES.

WORKING MEN'S COLLEGE, GREAT ORMOND STREET.—At a meeting held for the purpose of starting a Benefit Society in connection with this College, the chairman, Mr. Thomas Hughes, M.P., made the following remarks in reference to benefit societies generally, which cannot be too often repeated, seeing how much misery ensues from not taking due precautions in the investment of savings, to secure a provision against sickness and old age:—"The great majority of benefit sociaties were, he was sorry to say, holding out to the persons who joined them false hopes. They start upon Tables which are framed upon too low a scale, and make promises which they cannot fulfil. Such societies were undoubtedly doing great injury, because a man during the last years of his life paid his subscription with a view of securing a provision during sickness and old age, which it is utterly impossible that they can secure under the rules; the societies consequently break down, and their members lose the money which they have paid. Now, he could speak from personal experience, because he had been a very poor man in his time—he was not rich now; but when he came to London, a very young man, he was very poor, considering his station in life. At that time he felt it was his duty to insure his life; he did so, and could truly say that he never took a step in his life which had proved more satisfactory. The habit of providence which societies of this kind induced was one of the best habits which a man could contract. It was all very well for a working man to say, 'I will put so much money by and take care of it;' but without periodical payments were enforced, he would find such a proceeding very difficult. He had great pleasure in being present that night, because he was perfectly confident that if that society were started, and its tables adhered to, the promises contained in its rules would be carried out, and they would never experience the misery, after they had paid for years into it, of finding that they had paid their money for nothing. He hoped they would start, as sailors said, with 'a flowing sail,' and that the society would prove a benefit to the members of the college, present and to come."

BELPER PERSEVERANCE LODGE OF ODD FELLOWS.—The members of this branch of the London Order, held at the "White Swan Inn," have just given an instance of the appropriateness of the name of their lodge. Up to the present period they have had no fund for the relief of the widows and orphans, and now, in order to establish such a fund, the members themselves have determined to make some sacrifice. They have agreed to give up their usual half-pint of beer, at the fortnightly meetings, and devote it to the widow and orphan; in addition to that, they are about paying one shilling each as a gift for the same object, and also an increased contribution monthly. The whole of the members being of the hard-working class, their resolve cannot be too highly commended, and all patrons and subscribers to these valuable societies will hail with great satisfaction the fact that the three halfpence per member once a fortnight will go to the widow and orphan, instead of being expended in beer. "Charity begins at home," and the members have resolved upon this, in order to make themselves deserving of the assistance of a few liberally disposed persons, who look upon this movement with favour. Nobody can over-estimate the great relief which these societies afford to parochial establishments; and, as it also encourages and fosters a spirit of self-dependency in the hard-working man, they cannot be too highly commended. The ending of the old year, and the commencement of the new, could scarcely be signalised in a more praiseworthy manner than by this instance of forethought and thrift in the working man.

WAGES.

THE ADVANCE OF WAGES.—A general demand for an advance in the prevailing rate of wages, to the extent of ten per cent., has led to the holding of meetings among engineers, mill-wrights, machinists, steam-engine makers, chair-makers and carvers, pattern-makers, silk-weavers, organ-builders, plasterers, colliers, farriers, journeymen bakers, excavators, and others. In some cases the demand for increased wages was attended by a strike, but generally the workmen have obtained the advance demanded without resorting to that step.

STRIKES.

THERE is a lull among strikes at present, on the principle that "after a storm comes a calm." It is much to be wished that they could be dispensed with altogether, and all misunderstandings and disputes between masters and men be referred to arbitration. This mode of settlement has been successfully tried by the house-carpenters and joiners of Wolverhampton. There has, however, been a strike among the police at Nottingham, which led to the dismissal of eight men.

We do not look for strikes among our neighbours across the Channel; but, recently, we learned of a strike among the velvet weavers at St. Etienne, "to the detriment of the manufacture and the workmen themselves." The looms, which are 2,500 or 3,000 in number, were all abandoned at the same time, both by the foremen, who are engaged by the masters, and by the hands, who work for the foremen. No notice was given, although the former ought to give three months' and the latter a week's warning before leaving off work. The motive for the strike was that the masters would not sign a tariff drawn up by the workmen in a meeting, and presented by delegates. If, however, the workmen have the right of coalition, they had certainly not that of refusing to fulfil their engagements, and this view has been taken by the Council of Prud'hommes, before which several of the foremen and weavers have been summoned. What will be the termination of the dispute no one can say. If the workmen were left to themselves, they would soon resume labour; but we learn that they are under an influence alien to their industry, and the present situation may last for a considerable time, although the majority of the men wish to resume work. Several of the men on strike were tried before the police court of that town last week. One weaver, named Roche, having worked contrary to the orders of the leaders, had a visit from two of the delegates, one of whom told him he wished he saw him hanged. The law officer who prosecuted said that no doubt the observation was of little consequence, but it should be known that of 2,000 men on strike, there are 1,950 who want to return to their work, but are intimidated by the other fifty. One of the delegates was sentenced to imprisonment for four months, and the other to the same punishment for forty days. In another case three weavers were sentenced to imprisonment for two months each.

WORKING MEN'S DWELLINGS.

THIS subject has assumed greater importance in the metropolis than ever, in consequence of the vast demolitions going on in connection with railways. The evictions are numbered by thousands, and where the majority of those turned out of house and home will find shelter is a mystery we cannot attempt to solve. The evils of overcrowding—always great—will be increased, to the great injury of the health of the working population. The matter has excited the sympathy of several philanthropic persons; but the efforts to remedy the great and increasing evil of overcrowding are but as a drop in the bucket compared with what is required. The bane and the antidote, however, are not wholly separated. Railways cause the evils of which we complain, and railways offer something of a remedy, by providing frequent and cheap access to the suburbs. Let the working man by all means avail himself of the facilities thus afforded for escaping the physical and moral deterioration to which overcrowding exposes his family. Let him secure a little cottage and garden, if possible; it will be a boon to himself, and a blessing to his family, who will be enabled to enjoy those prime essentials of life—light and pure air—to a greater extent than is possible in an overcrowded town.

LAMBETH.—A large meeting was lately held at the Lambeth Baths, to consider the best means of erecting improved and cheap dwellings. It was proposed that a limited company should be formed, partly by the contributions of the workmen themselves, and partly through the aid of capitalists. The success of companies already in operation on this ground, was held out as an earnest of the prospects of any new association that could take advantage of the experience that had been gained in the matter. A resolution was moved setting forth the necessity for immediate action in the matter, and recommending the co-operation of the working men themselves as one of the most effectual means of obtaining improved and cheaper dwellings. Alderman Waterlow had shown how such houses could be made to pay. The resolution was carried, and a committee appointed to conduct the matter.

NEWCASTLE-ON-TYNE.—An important movement has been set on foot here for the erection of model lodging-houses and cottages for the working classes, accommodation in which the great towns on the Tyne are very much deficient. The movement has been initiated by some earnest sanitary reformers and persons of influence here, so that there is every hope of its being carried out with the energy necessary to success.

SOUTHWARK PARK.—At the monthly meeting of the Rotherhithe vestry held recently, a deputation was appointed to wait upon the Metropolitan Board of Works, for the purpose of presenting a memorial, urging the necessity of proceeding with the formation of the new park for Southwark, which was sanctioned by an Act of Parliament passed last year. The Metropolitan Board has contracted with the freeholder for the site, and negotiated a loan for the amount required; and the memorial sets forth that, as the level of a portion of the land will require to be raised, an advantage will be gained by the immediate formation of the park, as the refuse earth, &c., of the main sewer works now in progress at Rotherhithe can be made available, and thus reduce the expenditure.

LEGAL DECISIONS.

MASTER AND SERVANT.—A carpenter in the employ of the Vale of Neath Railway Company was going up a ladder to a scaffolding erected close by a turntable, when an engine, which was being turned round on the turntable, struck the ladder, and he was thrown to the ground and much injured. The accident was owing to the negligence of the porter who had the management of the turntable. The carpenter brought an action against the company, but the Court of Exchequer Chamber has decided that the plaintiff and the porter were servants in a common employment, and that therefore the case came within the well-known principle that a master is not liable to one servant for injury done to him by another who was engaged in a common employment with him.

INTIMIDATING WORKMEN.—Two stonemasons have been convicted and sentenced to two months' imprisonment with hard labour, for intimidating and endeavouring to prevent certain men in the employ of Mr. Pritchard, a builder, from continuing their work. The Lord Mayor, addressing the prisoners, said the case against them of threatening and intimidating the men Shearman and Newton was, in his opinion, most conclusively proved, and he should mark his sense of their misconduct. A working man had a right to take his labour and skill, which were his capital, to what he conceived the best market, but he had no right to dictate to others the terms and conditions on which they should exercise their handicrafts, or say to this man or that man that, if he did not coincide with him in the disposal of his labour, he should subject him to personal violence. That was a species of tyranny upon the odium of which he had long pondered, and he could only suppose that the prisoners were men hardly capable of gaining a livelihood in a fair competition with men of their own trade. The witnesses had given their evidence fairly. They were entitled in such a state of things to the protection of the law, and that protection, so far as he could afford

it, they should receive at his hands. He would say further, that if they, or any other workmen within his jurisdiction should, after this, be subject to the slightest molestation or intimidation, or be threatened with personal violence, and would only apply to him, they should be protected. There was a large class of working men unconnected with trades' unions, who simply wanted to earn an honest living by the exercise of their skill and industry. On the contrary, men like the prisoners did —what? combined to prevent them. Such conduct was intolerable.

TURNPIKE TOLLS AND WORKMEN.—A case of considerable importance to workmen was recently decided by Mr. William Walker, chairman, and other justices, at the Doncaster West Riding Police Court. A working potter, named Shaw, was summoned at the instance of the trustees of the Doncaster and Tinsley turnpike-road, for evading payment of toll. Along the valley of the river Don, which is navigable, large works have sprung up, and the trustees, in a recent Act, obtained powers to place a bar between Mexbrough and Conisbrough, and also to charge a toll of 1d. for every foot passenger that goes over a bridge close by. Large numbers of workmen reside at Mexbrough on one side of the river, and work at a large colliery and pottery on the other; and it was alleged that, among others, a man named Elijah Shaw had evaded payment by crossing the river at a point higher up than the bridge in question, then, walking down the hauling-path, trespassed across several fields, and gained the turnpike again below the bridge. As many workmen crossed, it was of some importance that the law should be defined. It was shown that Shaw had thus evaded toll, and had not obtained a weekly ticket, as many other men had done, for fourpence, to give them permission to pass whenever they liked within seven days. The defendant pleaded that he had such weekly ticket, and produced it; and he further said that he had shown the ticket to the toll-bar keeper, at the time he was seen to be passing another way than over the bridge in question, but that he went there as the nearest way. The ticket did not contain the name of the defendant, nor was it usual to put names upon the tickets issued; whereupon the Bench gave the defendant the benefit of the doubt, and dismissed the information. They advised the toll-bar keeper to write the name of the holder of the ticket upon it, and it then could not occur, as was now pleaded, that the ticket could be paid for by one person and used by another. The toll on the bridge has long caused much excitement in the district.

PUBLIC WORKS.

NEW METROPOLITAN TRAMWAYS.—A renewed endeavour will be made in Parliament to obtain powers to lay down improved tramways for omnibuses, also of a much improved character. The top edge of the rail will be flush with the pavement, very narrow, and will present no obstruction to wheels; and those adapted to it can readily get off or on it. The projected company will be bound to maintain a strip of the road seven feet in breadth for each line of rails, although no exclusive right to travel on them will be reserved. The company will be competitive with the General Omnibus Company; and no doubt this itself will constitute a strong recommendation to Londoners, who desire to supersede, by an English company, the French association, which at present overrides the citizens with their bad draughty omnibuses and their broken promises. If otherwise objectionable, tramways would promote the regulation of traffic, and obviate the necessity for demolishing some hundreds more houses by running railways through various parts of the metropolis.—*Builder.*

WATERLOO AND WHITEHALL RAILWAY.—The works of this company's lines are progressing. At a short distance from Charing Cross Bridge, and between the north and south shores of the Thames, groups of piles have been driven into the bed of the river, marking out the sites for the piers and the route of the line, which will be nearly parallel with the railway bridge. The ground for the Whitehall station in Scotland Yard has been enclosed, and a coffer-dam commenced for the formation of the north abutment. Running from the station in Scotland Yard, the line will be carried in brickwork beneath the tunnel of the Metropolitan District Railway, and then under the Low Level Sewer to the northern abutment. From this iron tubes of 16 ft. diameter, are to be laid on the clay beneath the river. The trough in the bed of the river is now being dredged for the tubes. From the south abutment the line will be completed to the Waterloo Station in brickwork, passing on its way beneath the Belvedere and York Roads to a terminus near the South-Western Railway Station. At the cab entrance to the Waterloo Station in the York Road will be the pumping station, where the engines, &c., are to be erected for working the traffic. It is expected that this pneumatic railway will be finished in about twelve months.

CINCINNATI SUSPENSION BRIDGE.—The new bridge about to be suspended over the Ohio river at Cincinnati will be the longest structure of the kind in the world, being more than 2,000 ft. longer than that over the Niagara river, and 540 ft. longer than the Menai-bridge, England. Its total span will be 1,057 yards. The stone piers rise 110 ft. above the floor of the bridge, and 200 ft. above their foundations. One year is allowed for building it.

Chips and Shavings.

HE who can bear to be told of his faults is on the way to become a philosopher.

"I CAN'T find bread for my family," said a lazy fellow in company. "Nor I," replied an industrious miller, "I am obliged to work for it."

A BARNSLEY RECIPE.—The best way to prevent a kitchen door creakin', is to get a servant lass a's a sweetheart cums tut house to see her.

IT is a singular fact that the pattern now most common upon Paisley shawls, and which had always been a favourite, is said to have been in use among the Hindoos three thousand years ago.

A GENTLEMAN of the name of Pepper had been thrown several times from a spirited horse, and was relating the circumstance to a friend, at the same time observing he had never given his horse a name. "I think," observed his friend, "you should call him Pepper-castor."

AT an examination of girls for the rite of confirmation in the Episcopal Church, in answer to the question, "What is the outward and visible sign and form in baptism?" the reply of a bright little theologian was, "The baby, sir."

BRASIDAS, the famous Lacedemonian general, caught a mouse; it bit him, and by that means made its escape. "O Jove!" said he, "what creature is there so contemptible but that it may have its liberty, if it will contend for it!"

DAILY WORK.

WHO lags for dread of daily work,
And his appointed task would shirk,
Commits a folly and a crime:
A soulless slave,
A paltry knave—
A clog upon the wheels of Time.
With work to do, and store of health,
The man's unworthy to be free
Who will not give,
That he may live,
His daily toil for daily fee.—C. M.

"WILL you have it rare, or well done?" said an Englishman to an Irish friend, as he was cutting a slice of roast beef off the Christmas joint. "I like it well done here," replied Pat, "for it was rare enough I ate it in Ireland."

THE tears of a family may flow together, like those little drops that compact the rainbow; and if they be placed with the same advantage towards heaven as those are to the sun, they, too, have their splendour; and, like that bow, while they unbend into reasonable showers, yet they promise that there shall not be a second flood.—*Andrew Marvel.*

IT's hard work to do nothing, and have too much of it on hand. It's hard work to collect a debt from one who says, "I'll pay to-morrow." It's hard work to refuse a good offer, and it's harder still to be compelled to accept a bad one. It's hard work for many people to live, and doubly hard for some to die.

"WHEN I goes a shopping," said an old lady, "I allers asks for what I wants; and if they have it, and it's suitable, and I feel inclined to take it, and it's cheap, and it can't be got anywhere else for less, I almost allers take it, without chaffering about it all day as some people do."

CURED.—The following story is told of the Reverend Doctor Morse:—At an association dinner, a debate arose as to the use of the rod in bringing up children. The doctor took the affirmative, and the chief opponent was a young minister whose reputation for veracity was not high. He maintained that parents often do harm to their children by unjust punishment from not knowing the real facts of the case. "Why," said he, "the only time my father ever whipped me, it was for telling the truth." "Well," said the doctor, sarcastically, "it cured you of it, didn't it?"

BE SOMETHING.—Don't be a drone. You may rely upon your present possessions, or on your future prospects, but these riches may fly away, or hopes may be blighted; and if you have no place of your own, in such case, ten to one, you will find your path beset with thorns. Want may come upon you before you are aware of it; and, having no profession, you find yourself in anything but an enviable condition. It is, therefore, important that you should be *something.* Don't depend upon fortune, for she is a fickle support, which often fails when you lean upon her with the greatest confidence. Trust to your own exertions.

WHAT is there a man cannot save and improve? By curbing appetite and restraining passion, by observing prudence and maintaining regularity, he may save his health, husband his strength, and thus preserve the springs of health, as constant fountains of energy and happiness, to sustain and cherish him under every labour and every hardship. He may save a fortune by industry and denying himself needless indulgence, and he may find a pure enjoyment in devoting it to noble uses. One of the hours each day wasted on trifles or indolence, saved and daily devoted to improvement, is enough to make an ignorant man wise in ten years; to provide the luxury of intelligence to a mind torpid from lack of thought; to brighten up and strengthen faculties perishing with rust; to make life a fruitful field, and death a harvest of glorious deeds.

PRIZES

OPEN TO COMPETITION BY WORKING MEN.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS, 1866.—The attention of students in drawing at the Institutions and Evening Classes in Union with the Society of Arts is especially drawn to the following Prizes offered for botanical drawings:—"(237.) Water-colour drawing of any plant, British or exotic, natural size, with the usual magnified dissections; to be drawn or mounted on folio paper, and to combine scientific accuracy with artistic treatment. 1st prize, £5; 2nd prize, £3; 3rd prize, £2." Candidates will observe that these drawings must be sent to the executive committee of the Royal Horticultural Gardens, South Kensington, by the evening of Monday, the 21st of May. Further particulars may be obtained on application to the assistant-secretary, Mr. Richard Dean, 1, William Street, Albert Gate, W.

THE ARCHITECTURAL MUSEUM, SOUTH KENSINGTON MUSEUM, W., 1866.—The following prizes are now offered to art-workmen:—For stone carving, £10, £5, and £2; for wood carving, £15 and £5; for silver work, £15 and £5; for transparent enamels, £10; for opaque enamels, £10; for marble mosaic, £10 and £5.—Particulars of the competitions may be had by a letter to the Honorary Secretary of the Architectural Museum, Joseph Clarke, Esq., 13, Stratford Place, London, W., enclosing a directed and stamped envelope; or of the Attendant at the Entrance to the South Kensington Museum.

CORRESPONDENCE.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *1a Belle Sauvage Yard, Ludgate Hill, London, E.C.*

Greenwich Ripley, Derby, 21st Dec., 1865.

To Messrs. Cassell, Petter, and Galpin.

SIRS,—Will you kindly permit me to attempt to express the pleasure I felt when I first saw your announcement of the new serial you are about to issue; for, among all the periodicals with which I am acquainted—and they are many—there are none that, in my estimation, can be considered as having a direct bearing upon the social condition of the millions of England's toiling sons and daughters—none that can be properly called, "the working man's journal." When I say a working man's journal, I allude to a paper that shall furnish a faithful index to the working man's experience, that shall be the mirror of his true condition; and in order to be that, it must be the vehicle to bear his own thoughts and feelings to the world—it must be the mouthpiece for him to speak of his own experiences. Let the son of toil speak for himself, and his statements are the embodiment of practical common sense, because he speaks from experience, or from observation of the ways and doings of those similarly circumstanced with himself. The speculative theorisms of the college-manufactured rhetorician may be very well in their place, but, for practical purposes, they can never supply the place of the real matter-of-fact stuff that you find in the thoroughly intelligent working man. I once read a gentleman's speech, delivered before a considerable audience, in which he reverted to the agricultural labourers of South Nottinghamshire, and spoke of their intelligence and prosperous condition in the most glowing terms. I can speak from actual observation extending over a number of years, in which I did not fail to get all the information possible from the labourers themselves; and can state from their evidence, conjoined with that of my own eyes, that the statement was a barefaced misrepresentation.

Numbers who listened to that speech would go home with the idea that they had been listening to the truth. How different an impression would have been produced had one of those *prosperous* labourers been in the gentleman's place that day!

For the workman's real condition to be truly understood, he must be left to tell his own tale; since it is him alone who is practically acquainted with it. I can testify that there are numbers of individuals among the operatives who are eminently calculated to advocate the great and important cause of the industrial classes. I could enumerate not a few among my own friends with whom I have become intimate through my connection with various literary institutes and mutual improvement classes; the essay writing abilities of some of those persons truly do honour to them. It is to such institutions as these, in some measure, that I owe my own improvement, as my parents could not afford to send me to school, and I am at the present time working twelve hours per day for fifteen shillings per week; at the same time I have received no little benefit from your own publications, many of which I am in possession of. In reference to the WORKING MAN, if the conditions laid down in your prospectus be impartially adhered to, I am sanguine of an enormous circulation. Coupled with the high standing in the public estimation of the source of its issue, the novelty of the thing will recommend it to multitudes who would not patronise it from worthier motives.

In conclusion, I doubt not that, with God's blessing upon your labours, you will be abundantly satisfied with your success; and you will oblige by transmitting me a few prospectuses, of which I shall not fail to make the best possible use. With best wishes for your undertaking, I am, yours truly, H. M.

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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

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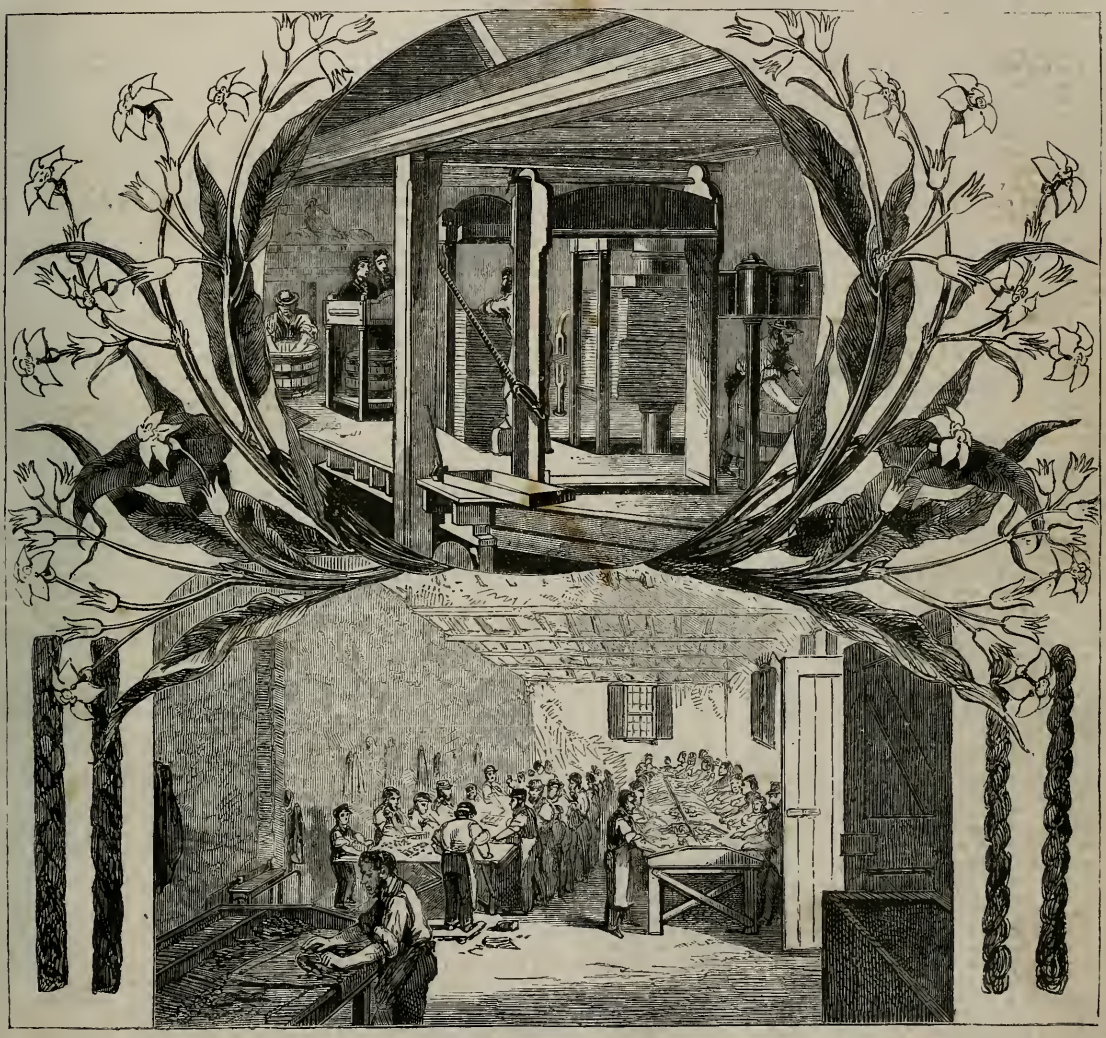
[REGISTERED FOR TRANSMISSION ABROAD.

VOL. I.—No. 2.] SATURDAY, JANUARY 13, 1866. {PRICE 2D. {STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.



THE MANUFACTURE OF TOBACCO.

An Australian Tobacco Manufactory.

AUSTRALIA is slowly but surely developing the germs of what bids fair to prove ultimately a vast and apparently inexhaustible *manufacturing* power. The same causes which have transformed the once calm and peaceful forest regions of America into crowded and ever-busy hives of industry, where the looms seem to be in perpetual motion, and the forges are seldom allowed to cool, are also in full work at the Antipodes. The first difficulties of colonisation—difficulties aggravated by the mischievous results of the transportation system—were no sooner got over, and something like a tolerably fair estimate formed of the productive powers of the soil, than the settlers directed their attention to the encouragement of such manufactures as appeared to hold out reasonable hopes of becoming permanently successful; but, for a time, the comparatively cheap rate at which manufactured goods could be supplied from the mother country, combined with the high price of labour in New South Wales and its sister colonies, seemed to prevent the idea of Australian manufacturing industry from becoming realised. Time and perseverance, however, work wonders. Like the inhabitants of the United States, the Australians felt their energies rise in proportion to the magnitude of the obstacles which impeded their progress, and by the exercise of no mean amount of inventive power, and the adoption of improved mechanical appliances, they have at last managed to accomplish their desire, and to take their stand in the field of manufacturing industry. New South Wales, South Australia, and Victoria, each have their peculiar manufactures. In the first-named colony, horse, wind, and water-mills are gradually

giving way to steam. In 1852 there were 72 steam-mills for grinding and dressing grain; in 1862 there were 131. In 1853 there were 141 manufactories or works conducted by machinery; in the ten years ending with 1862 they had increased to 859.

It is, however, of the tobacco manufacture that we wish more immediately to speak. This, so far as New South Wales is concerned, appears to have taken a great start since the outbreak of the American War—an event which, by lessening the supply of manufactured material, greatly relieved the Australian tobacco manufacturer from the effects of competition. In 1861, the production of Australian manufactured tobacco amounted to 1,587 cwt. In the succeeding year it had increased to 3,755 cwt. The introduction of the manufacture into New South Wales, was mainly attributable to the exertions of Mr. Dixson, who emigrated to Australia some twenty-five years since for that express purpose, although, until about three or four years since, he found himself unable, by reason of the excessive duties levied on the raw material, to carry out his cherished design. The lowering of the tobacco duty led him, in July, 1862, to commence the fitting up of his manufactory, in which, at the present time, about sixty persons are employed, the quantity of tobacco turned out weekly being over two tons. This may appear somewhat small to those accustomed to the vast establishments found in this country and on the Continent; but it must be remembered that the Australian tobacco manufacture is as yet in its infancy.

The manufactory, which is at Sydney, is described as being very interesting. The operations commence in a damp cellar, where the leaf is carefully emptied out of the hogsheads, and received by boys, who separate the various leaves, and strew them over the floor. When the floor is fully covered with a layer of leaves, water is sprinkled about in all directions, until the leaves become damp, when a fresh layer is placed upon them, and the watering process repeated. This is carried on until the various layers have attained a thickness of about two feet. When the material has become sufficiently moist, it is carried into the upper rooms, where it passes through sets of three hands each, consisting of men and boys of about fifty in number. Each set of three is provided with a roomy table, ledged round on three sides. The first hand takes up the leaves and opens them out. The second takes the leaves thus prepared, and places them one by one on each other, in such a way that they overlap. He then rolls them into strands about eighteen inches in length. The third takes one of these strands, which resembles a piece of tarred rope, and doubling it up in the middle, dexterously twists it ropewise by rolling it under the palms of his hands, which must be soft and delicate. Then, nipping off the tapering ends, he tucks the stumps into the coil, and the "fig" of tobacco, so far as manual labour is concerned, is complete.

The tobacco thus prepared is next subjected to powerful hydraulic pressure—the presses being made of the best Lowmoor iron, by which the "figs" are considerably flattened and reduced in thickness. They are then placed in tierces, made from the *silky oak*, and hooped with thick iron. The tierces themselves are surrounded by a casing of loose iron-bark staves, an inch and a half in thickness, round which are placed thick truss-hoops of English iron. As soon as the tierce is full, it is placed in the press, and pieces of wood, in size and shape like large grindstones, and fitting exactly to the inside of the tierce, are placed at the top of the tobacco, which is then subjected to a pressure equal, at least, to 500 tons, by which means it is compressed into a close, solid, and compact mass. The pressure is then removed, and more "figs" added, when the pressure is again applied, the process being repeated again and again, until the tierce is filled, and ready for heading up. The tobacco has next to be *sweated*. The sweating-room is entered by creeping through two small double doors, and is a large, dark apartment, with thick brick walls and iron ceiling, heated by a furnace to a high temperature, and traversed by a floor consisting of joists only, without boards. On this floor the tierces are laid, and for four, five, or six weeks, according to circumstances, they remain subject to a constant and uniform heat, the furnace being kept burning day and night. This imparts a black colour to the tobacco. After going through this process, the tierces are allowed a week to cool, when the tobacco is ready for the market. In a separate establishment a number of girls and young women are employed in the manufacture of cigars, for which a ready sale is found in the colony.

Paris Exhibition of 1867.

THE forthcoming Industrial Exhibition at Paris will be emphatically a Working Man's Exhibition, and it will be advantageous to every skilled artisan to thoroughly inform himself of every particular regarding its plan, purpose, and organisation. We shall duly report in these pages every particular of progress that comes under our notice.

The Imperial Commission has lately been much occupied with the consideration of the means of securing the best possible illustrations of those industries which depend entirely, or principally, on manual labour, skill, and taste. Every effort is being made to give to that department which in 1862 was called the Process Court, great extension and importance, not only as respects French exhibitors, but those of all parts of the world.

The Imperial Commission will take upon itself the charge of the French artisans, and will leave to the Foreign Commissions the superintendence of their own countrymen, while special arrangements are made for the reception and superintendence of such other artisans as do not fall under either of these heads, who belong to countries only partially civilised, and not officially represented in the Exhibition.

First, as regards French workmen, it is proposed that they shall be admitted, in some cases, on their own application, and in others, under the superintendence of a master, foreman, or delegate appointed by themselves. The Commission leaves to employers, local societies, and others, the charge of indemnifying the workmen under their care, and providing the means for their journey to and from the Exhibition, and for their maintenance during their stay in Paris; but it will afford facilities for the sale of the products of these industries, and thus partially, if not entirely, provide for the expenses incurred. The goods produced within the Exhibition, and within certain limits, and others from the same source, will be allowed to be sold either on the spot where they are produced, or in the bazaars which each country will be permitted to erect within the portion of the park allotted to it. In cases, however, in which the products are not saleable, the Imperial Commission is prepared to co-operate with the Foreign Commissions or other representatives, and to contribute towards the support of the work provided, if it considers the object of sufficient importance to warrant the sacrifice. Another inducement held out by the Commission is that, in addition to medals awarded by the jury for superiority of workmanship, certain recompenses will be bestowed upon those workmen who exhibit the most remarkable aptitudes.

As regards the industries to be admitted to the Exhibition, the only exceptions made are those of which the material or the processes employed are disagreeable, unwholesome, or dangerous, and those which require too much time for their development to allow them to be fully illustrated in a conveniently short space of time. It is understood, however, that a certain amount of originality, superiority, or special ingenuity will be demanded as the necessary qualification for admission; or, in other words, that the industry to be illustrated shall have a claim upon general attention.

In the classification of the workmen and industries, the Commission adopts the expressions *European* and *non-European*—the former including not only those actually placed in Europe, but those whose civilisation raises them to the European standard, while the other title designates the opposite. In the list of European industries which it is desired to see represented in the Exhibition, we have:—First, the class which works with the aid of machinery; we find, besides the great branches of manufacture, sewing and embroidery by machinery, the manufacture of boots and shoes, envelopes, medals, confectionary, ice, chocolate, metallic pens, thimbles, nails, pipes, fish-hooks, capsules, needles, pins, pencils, bricks, tiles, &c.

In the second class, that of products in the manufacture of which manual labour competes with machinery, such as the making of thread, string, rope, tissues, needlework, netting and knitting, printing of all kinds, the making of shawls, carpets, tapestry, embroidery and lace, corks, wooden shoes and clogs, rustic furniture, trellis-work, the woodwork of lucifer-matches, hand-made paper, bookbinding, basketwork, button-making, brush-making, the casting of shot, &c.

The third class, that in which the excellence, dexterity, intelligence, and taste of the workman are peculiarly conspicuous, and which have exhibited the greatest success in resisting the concurrence of machinery, is divided into three sections:—

1st. That which will be comprised within the Exhibition building itself, as the manufacture of the tapestry and carpets of Aubusson and Beauvais; the making of designs and the preparation of the cards for the Jacquard loom; hand-lace making and embroidery; the making of artificial flowers and fruits; working in feathers, pearls, spun glass, &c.; fabrication of articles of clothing and small wares; working in the precious metals, and ornamental occupations—such as engraving, chasing, niello and damascene work, inlaying, incrustation; carving in wood, ivory, and metals; illumination and colouring on wood, stone, metal, paper, silk, and other materials; decorative painting on porcelain and panel; engraving on glass, gems, shell, copper, zinc, steel, stone, and wood; typographic and telegraphic composition; the polishing of lenses, and the construction of mathematical and philosophical instruments.

2nd. Works requiring the aid of fire, and which are to be grouped around sources of motive power in the park—such as the making of pottery, porcelain, glass; enamelling and filagree work, gold-beating, works in the precious metals, in which the aid of fire is required; casting and working in bronze and other metals.

3rd. Agricultural and horticultural industries; photography, &c., in the park, or in places set apart for experiments and competition. The rearing of silkworms, the distillation of essences and perfumes, farming and other employments, occupying families, or numbers of persons, will each, as far as possible, have separate establishments for their accommodation, in order to exhibit them under their ordinary aspects.

The class of *non-European* occupations presents greater novelty and, at the same time, greater difficulty. The Commission has, however, received important tenders of assistance with respect to this class, which encourages a hope that a portion, at least, of the manual operations little known to the European world will be represented at the Exhibition. In order to induce workmen and families from remote parts of the world to come to Paris, and pursue their occupations during the time of the Exhibition, and with the necessary submission to its rules, as well as to the habits of the European world, the Commission depends partly on the assistance of Foreign Commissions, and partly on the aid of missionaries and merchants. As regards the missionaries, it is expected that they will be able to induce some of their converts to accompany them to Paris, and also to superintend and arrange for their maintenance while there, either in the houses of the missions, or in special apartments, adapted to the habits and necessities of each family or party, and the Commission, in all such cases, is prepared to undertake all the costs. It is hoped that this arrangement will create within the limits of the Exhibition a certain number of native groups, the study of whose habits, manners, and methods of working will be not only useful in an industrial point of view, but offer, also, valuable means of ethnological information. The same means of disposing of the productions of these strangers will be accorded as have already been mentioned with reference to European workmen.

The Commission hopes to present to the view of Europe—Laplanders making fishing-tackle; Ural Tartars employed in the preparation and ornamentation of skins and carpets; the Kabyles of Algeria making the glazed pottery of Bjedjera, carvings in the wood of the fig-tree, ornaments in silver and coral, and carpets of Oran and other districts; natives of Morocco weaving silk, cotton, and woollen fabrics, making fez caps, saddles, and arms, and preparing shagreen; negroes of Soudan producing cotton cloth, morocco work, and pottery; the half-castes, or *Petits Blancs*, of the Isle of Bourbon making sacks for sugar and coffee; Anatolians weaving Smyrna carpets, silks, and cloth of gold; Syrians

fabricating tissues and arms of Damascus, Aleppo, and Lebanon, mother-of-pearl work of Bethlehem, and gold work of Beyrout; Persians at work on Kurdistan carpets, silk embroidery, Kirman shawls, and silks and cottons of Yerd, enamelled tiles, and damascened arms; Indians weaving muslins, embroidering cashmeres, engraving ivory and wood, and twisting threads of gold into bracelets and other ornaments; Cambogians fabricating boxes and toys from sandal wood; Siamese carving rhinoceros horn; and, perhaps, Chinamen carving a nest of ivory balls; Japanese painting their incomparable lacquer wares; Mexicans turning their perfumed pottery; and redskins composing head-dresses of feathers and bead-embroidered mocassins.

Nearly the whole of one side of the building and of the park are devoted to France. Great Britain occupies that portion of the other side which is nearest the chief entrance, namely, that which faces the river. The amount of park space allotted to her is very large, and it is hoped that her model farms and cottages, agricultural machinery and produce will form a very attractive portion of the Exhibition.

THE WORKING MAN.

BY JOHN PLUMMER.

I'll sing you a bran-new song, that was made by a queerish pate,
Of a sturdy English working man in years now out of date—
How his heart, undaunted, proudly bore against his bitter fate—
How with a word of hearty cheer he comforted his mate,
Like a true-born English working man, one of the olden time.

His home so poor was thatched with straw, to ward off rains and snows,
But fagots he had very few to warm his frozen toes;
Yet cold and frost were vain to quench the flame that burning rose
Within his breast as e'er he sang—"In fight fear not the blows,"
Like a true-born English working man, one of the olden time.

His heart was stout, his arm was strong, and both could do and dare;
A heart and arm that in the fray shirk'd not their daily share:
A bright, clear eye that smiled alike in storm or sunshine fair,
A soul that hardships fearless scorned, nor shrank the cross to bear—
Like a true-born English working man, one of the olden time.

But there were hours when he would dream of brighter days to come,
When Plenty's golden smile should bless the workman's lowly home,
And songs of happy children swell through heaven's wide azure dome;
And as he dream'd, with firmer step he trod the sullen loam,
Like a true-born English working man, one of the olden time.

He saw the gates of knowledge ope'd, and, through the portals wide,
The student and the working man, calm, enter side by side;
He saw his mates—the lords of toil—forth in their greatness stand,
The envy of surrounding climes, the glory of their land—
Each a true-born English working man, one of the modern time.

Men, be it ours, the noble aim, to speed this wish'd-for day,
When from the weary workman's path the clouds shall pass away,
To dark no more his onward course of peace, and hope, and love;
Let each of us raise up our hearts and ceaseless strive to prove,
Like this true-born English working man, one of the olden time.

NEW HYDRAULIC CEMENT.—M. Henri Sainte-Claire Deville announces that a very valuable hydraulic cement may be obtained by heating dolomite,—the abundant native double carbonate of magnesium and calcium, commonly known as "magnesium limestone,"—to between 570° F. and 750° F., and then making it into a paste with water. The heat to which the dolomite is subjected should be above 570° F., but should not exceed 750° F.

History of the Working Men's College,

45, GREAT ORMOND STREET, QUEEN'S SQUARE, LONDON.

BY WILLIAM ROSSITER, SENIOR FELLOW OF THE COLLEGE.

I.—THE ESTABLISHMENT OF THE COLLEGE.

ALL who remember the year 1848 will also recollect the Chartist meetings of the earlier part of it, and especially the great meeting of the 10th of April, when the great body of London tradesmen enrolled themselves as special constables, to keep in check a physical force display made by a crowd of men said to be mostly ignorant and all dissatisfied.

But, besides these thousands of well-to-do tradesmen, some few other men thought they might possibly be able to do something towards preserving order and peace by finding out, in some degree, why these manual workers were dissatisfied—whether they were really so ignorant as not to know how contented and happy they ought to be; or whether they had any real grounds of complaint, and, by reason of their ignorance, knew how to look for other than a physical force remedy.

These few men founded, in the year 1854, "The Working Man's College." During the six years between 1848 and 1854, they worked quietly but steadily among various classes of London working men, making themselves familiar with their ways of life, their thoughts and feelings.

The following extract from an article in *Fraser's Magazine* for January, 1850, written by one of these men (J. M. Ludlow, Esq.), will show what they found. Speaking of letters on the same subject in the *Morning Chronicle* of that date, he says:—

Strange and sad, indeed, are the pictures which these metropolitan letters exhibit, drawn from God's own storehouse of fact—stranger, sadder, terribler than all fiction. Look at the Spitalfields weavers, "formerly the only botanists in the metropolis," possessing, within the memory of living man, an Entomological Society, a Horticultural Society, an Historical Society, and a Mathematical Society—all maintained by the operatives—bringing forth a Dollond, a Simpson, and an Edwards; and then, in the course of this very half century, seeing their wages cut away from them year after year, falling from 14s. 6d. (average) in 1824, to 7s. in 1839, and to 5s. 6d. in 1849; till the second and third-rate weavers are found living twenty persons in a house, tasting sometimes animal food once a month. Look at the three thousand labourers scuffling every morning at the London Dock-gates for a single day's hire of half-a-crown; at the slop-work tailors—the men receiving 3s. 6d. for the coats they made at 5s. 1d. two years ago—sometimes eating, drinking, sleeping, working in one room, as many as ever the room will contain. . . . If only the food and other necessary articles purchased by these were cheap and wholesome! But the reverse is the case. It is shown that among the street hucksters—the great purveyors of the poor—the pound-weight of the costermonger, or street vendor of vegetables, fruit, and fish, "is mostly deficient four ounces, and frequently eight or ten ounces; that the pint measure is at least one-third short; that the fish supplied to them is generally what is called 'rough,' or, in other words, two or three days old before it is bought, and frequently putrid when sold by them to the poor; and, moreover, that they almost invariably borrow the capital with which they purchase their goods, and pay interest at the rate of nearly 1,000 per cent. for the money."

This was the condition of a great number of the working men of London, to say nothing of the women, who toiled as many hours as they could keep their eyes open, receiving in return wages varying from 3s. 6d. to 1s. 3d. per week.

These facts were made patent to the world by means of the *Morning Chronicle* and *Fraser's Magazine*, and the world, full of benevolence and thoughtlessness, more ready to give money than care, set charity to work to relieve the distressed workers; forgetting that this charity relieved the employers rather than the employed, by enabling the latter to work for lower than living wages.

Others, with more of thought, but no less of charity, looked to emigration as a remedy, and so it proved; but to those who went rather than to those who remained. Many who did not emigrate would have done so but for want of energy, of means, or of knowing how to go about it.

The men who afterwards founded the Working Men's College also gave both money and thought towards the doing away with the system of starvation wages. But they determined to try no great experiment—to put forth no universal nostrum; but to attempt, on a small scale, entirely under their own control, the experiment whether the men whom they sought to help could in any way raise themselves in their trades rather than out of them—whether there was no way by which, without leaving their country, they could earn, if not a comfortable, at least a decent living. To quote again the article in *Fraser's Magazine*—

There appear to be two means by which the working man can peacefully and successfully contend against the two-fold evil of the low wages which he receives for his work, and of the high prices he has to pay for his food and other articles of consumption. These two are Co-operative Stores on the one hand, as a means of cheapening the consumption of the worker, Associative Labour on the other, as a means of raising his earnings, by transferring to labour and skill the profits hitherto monopolised by capital, after a due hire shall have been paid for its use.

It was proposed to try these co-operative and associative systems, not as a grand empiric for all social diseases, but on a small scale as experiments, which, if they failed, should do but little if any harm; but which, if successful, might be the germ of a great and lasting good to the working man, by enabling him, not to escape from his place in London work, but to recover and keep his right place therein; to help him in the only real way, by helping him to help himself.

The writer of the article in *Fraser*, writing two years later (1852), says:—

A society for promoting Working Men's Associations has been set up, and has served as a centre to bring various classes together, clergymen and lawyers, medical men and men of science, noblemen and capitalists, with tailors and shoemakers, with needlewomen and printers, and plasterers and bakers, and silk-weavers and working engineers, and others whom space would fail me to number. And those clergymen and lawyers, those medical men and men of science, those noblemen and capitalists, have gone to the working men, not to make a profit out of them, but to help them to make profits themselves; not to rule over them, but to enable them to govern themselves; not to bestow upon them ostentatious alms, but to help them by advice and assistance, and by money lent, not given, to raise themselves and their children above the need of alms.

The experience of this society for promoting Working Men's Associations during the six years 1848-53, showed daily more and more the necessity of the working man being educated. No one was more conscious of this than the working men themselves, and it was decided that the attempt should be made to provide some means of education for the associates of the various Co-operative Trades' Associations. The problems to be solved for the long existence of these associations, were problems of political and social economy—problems concerning the very essence of society generally. Zealous hard work the men brought for the motive power; but practical wisdom to steer aright was not so readily found.

What should be the nature of this education? The Principal of the college thus expresses his idea of a "National Education:"—

A feeling has been for some time at work in our land which may be interpreted thus: "All ages have been wanting to be informed concerning the mysteries of their own being—wanting to have the riddle of the world solved to them—wanting to know what they are, and whence they came, and whither they are going." A cry has been raised, Give this information to us and to our children. Refuse it to us, if you are willing to try the might which there is in human nature, blind and ignorant of all the conditions under which it exists. . . . Such a voice as this, uttered from the depths of a nation's being, may, perhaps, help us more in finding out that principle of which we have been so long in search, than many suggestions from ingenious and learned men. A mere education of restraint (such as the Spartan system) will not satisfy this cry; and yet it seems to indicate feelings which may well need much restraint. A mere education of the faculties (such as the Athenian system) will not satisfy it; and yet it seems to indicate the presence of faculties which must need to be called out. A mere education of information about facts and opinions will not satisfy it; yet it seems to crave for information about the deepest facts. This, I think, and nothing short of this, would satisfy it. If, at any time, it should be proclaimed that God himself is the great cultivator of humanity in men; that he has appointed men to co-operate with him in the work; that there is an order for carrying on this cultivation; that all peculiar faculties, all nature, all influences of society—above all, that great bond of society, language—are instruments ordained by Providence to help us in it.

It was finally resolved, early in 1854, that the

society for promoting Working Men's Associations should make an attempt to provide an education of this kind for the working men of London. Several meetings were held, and the following was agreed to be taken as the fundamental theory of the Working Men's College:—

1. The position of the founders as members of a society which affirmed the operations of trade and industry to be under a moral law—a law concerning the relations of men to each other—obliged them to regard social, political—or, to use a more general phrase—human studies, as the primary part of the education in the college.

2. They were not bound to confine their education to the associates of the society; but should promote their interests better by producing a scheme which should be available for the working classes generally.

3. Adult males (not younger than 16) were to be contemplated first and chiefly in the setting up of the college; but it was very desirable that provision should, in due time, be made for the teaching of boys and of females.

4. The education offered by the college was to be regular and organic—not taking the form of mere miscellaneous lectures, or even of classes not related to each other.

5. The teachers, and by degrees the pupils, were to form an organic body; so that the name of "college" should be at least as applicable to the proposed institution as to University College or to King's College.

6. The college was, in some sense or other, immediately or ultimately, to be self-governed and self-supported.

The house, 31, Red Lion Square, was taken, and the college began work on October 31st, 1854. The Principal, Rev. Frederick Denison Maurice, M.A., then Chaplain of Lincoln's Inn, gave an inaugural lecture, on the previous evening, at St. Martin's Hall.

(To be continued.)

Health of Body and Mind.

A new word has recently been adopted into our language from the French, because there is no English word that conveys the same meaning. This word is *hygiène*, or the art of preserving the health.—*Sanitary Science.*

PREVENTION is better than cure in evils of every kind, and especially as regards disease. To every one health is the greatest of blessings; deprived of it, the life even of the most affluent and exalted in social position is but a dreary waste. To the working man, whose family is dependent on his ability to get through a day's work, health is doubly precious, for without it poverty and privation, with all their attendant evils, set in, and inflict immeasurable suffering and injury upon his children, through insufficient food and clothing, and defective education. And to these evils another is almost sure to be added—that of being compelled to inhabit a confined and unwholesome dwelling.

This word *hygiène*, then, is one that has strong claims upon every prudent working man's attention, and it is his duty to make himself acquainted with all the matters comprehended in it. And he must not defer doing this until he has fallen sick. He may, it is true, have his sick club or his benefit society to fall back upon; but this reliance ought not to lead him to neglect every means of preserving his health.

The causes of disease are many, and extremely insidious. There are infectious diseases and contagious diseases, which no foresight can guard against; but if every one understood the laws of health, and the nature of the agencies whose operations generate them, those diseases would diminish, and, probably, soon disappear. The history of disease shows satisfactorily that many plagues, due to the prevalence of filthy habits and vitiated air, have given way before improved cleanliness and ventilation. Where they still prevail it is through ignorance or neglect of the laws of hygiene.

Many persons place great reliance upon the resources of medicine: they rashly invite disease, and trust to the doctor to cure them. This reliance makes people careless, and unmindful upon how slender a thread life hangs. Those who know how uncertain the healing art is in its operations, avoid this folly. Aware how frail a thing a damaged constitution is, they will so live as to render the assistance of the healing art as unnecessary as possible.

It is admitted that a person born with a sound constitution, and carefully nurtured during infancy and youth, ought to grow up a healthy, robust individual, and that, if he leads a sober, temperate life, he may attain a vigorous old age without experiencing much, if any, serious illness. M. Flourens, the eminent French physiologist, argues that one hundred years is the span of man's life, and that if one person can attain to that age, or more, the majority might do so likewise, if they observed the laws of hygiene.

The commonest causes of disease are found in some kind of imprudence or other, such as errors in diet, intemperance, or exposure to cold and wet: these are avoidable causes. The unavoidable causes are foul air, adulterated and unwholesome food, and polluted water.

But before entering upon the subject of hygiene, properly so called, it is necessary to say a few words on the moral and physical constitution of man, and to show that his twofold nature necessarily demands a twofold influence for the complete development of his being.

Man's body is a wonderful compound of organs, allied together not only by the continuity of their parts, but also and especially by the harmony of the functions they perform. From the hour of birth up to a certain age, these organs grow and develop themselves by an innate power, and by the same influences which sustain life throughout its entire duration. These influences, upon which physical life depends, are the sum of the conditions amid which we live, the principal of which are food, air, and light, supplied by nature, or fashioned by human industry and skill. We are nourished by air as well as by bread: that is to say, the body, by the internal action of its organs, appropriates the one as well as the other, converting each into its own substance. Anatomy, by its details, makes known to us the instruments of this appropriation. Physiology explains the mode by which this transformation and the other functions of the body are accomplished. Hygiene teaches man how to make the best use of the things necessary to life, in order to secure its regular development.

On this last point man's instinct, it might be supposed, ought to render the teachings of science unnecessary. It would be so if man were a piece of pure mechanism, or if, like the inferior animals, he possessed only organs with appetites regulated by an infallible instinct. But though, like them, man has a body, and is subjected, like them, to purely material wants, to which correspond, in nature, the things proper to satisfy them, he has also within himself a power distinct from matter—thought; the sentiment of good and evil, the soul. This power opposes itself to his material nature, and, when ill-directed, leads to every abuse of life, and degrades man below the *mere* animal, whose unerring instincts preserve it from this peril, at least.

The History of an Industrial Exhibition.

TOWARDS the latter end of January, 1865, the members of the Preston Working Men's Club, having heard of the large measure of success which had attended the establishment of Working Class Industrial Exhibitions in various parts of the country, held a meeting for the purpose of considering the feasibility of an industrial exhibition in Preston. They thought, and rightly too, that taking into consideration the large number of working-class families inhabiting the town and out-lying districts, the generally intelligent character of the working men themselves, and the paucity of rational modes of recreation provided for them, a well-organised exhibition would possess greater chances of success than in most other manufacturing towns. But it was not so easy to imbue others with the convictions entertained by themselves, and for a few weeks the project appeared to languish, although the local press had spoken earnestly in its favour. Much of this apathy was doubtless attributable to the circumstance of its having been at first intended that all profits derived from the exhibition should be applied to purposes connected with the Working Men's Club. It soon became apparent that if the exhibition was to be held at all, the promoters would have to devise some practical means of enlisting a larger amount of public sympathy and co-operation on their side, and hence it was finally decided at another meeting, held in March, to accept an offer made on behalf of the Avenham Institution for the Diffusion of Useful Knowledge—the Mechanics' Institute of Preston—and to form a committee, composed of the committees of the Working Men's Club and the Avenham Institution, for the purpose of starting the exhibition, all profits to be equally divided between the two institutions.

Thenceforth matters became simplified. It was seen that the committee were in earnest, and on the 22nd of March, the Mayor of Preston was appointed chairman of the committee. Almost immediately after this the Preston Corporation generously granted the loan of the Corn Exchange for the purpose of holding the exhibition—a step which was followed by the formation of a guarantee fund of £500, nearly all of which sum was promised amongst the committee themselves, thus proving their faith in the success of their undertaking. An appeal to the general public resulted in the increase of the guarantee fund to about £2,000, after which the committee set about the task of collecting articles for exhibition, in which they were ably assisted by many of the exhibitors, and by the leading inhabitants of the neighbourhood; and on the 21st of September last the exhibition was formally opened, the occasion being signalised by a general holiday in the town, the various local bodies and trade societies taking part in the procession which accompanied the municipal authorities and gentlemen assisting in the opening ceremonial.

The contents of the exhibition did not differ materially from those of other exhibitions, except in the increased number of models, specimens of raw material and machinery, and samples of finished products connected with the cotton manufacture—the local industry of the town and vicinity; but the Art department was enriched by the loan of many valuable paintings, while the Natural History and Antiquarian divisions showed how plentiful were the materials for a local museum. The chief interest of the artisan-visitors was, however, centred in that portion of the exhibition devoted to models; and it was both interesting and instructive to note the critical air with which a group of thoughtful-featured, rough-handed working men would attentively examine any new model or invention which attracted their observation. With the instinct of true handicraftsmen, they speedily perceived any defects or advantages possessed by it, and then proceeded to pass judgment upon the next object of notice. The popularity of the exhibition was considerably enhanced by means of judiciously-arranged concerts, lectures, scientific entertainments, &c., and by affording working class visitors every possible facility for inspecting—at the least possible expense to themselves—the details of the collection thus industriously formed. At first there was some fear that the good-will and harmony which prevailed amongst all classes would be disturbed, in consequence of several of the most active promoters of the exhibition objecting to the sale of alcoholic liquors at the refreshment stalls; but, somehow or another, peace was restored, and all went "merry as a marriage bell" until the close of the exhibition last month. During the period that the exhibition remained open, the *Preston Exhibition Gazette*, a small journal printed in the exhibition, was published at regular intervals, and met with much favour.

The number of persons visiting the exhibition, during the three months it remained open, was 200,050. The total receipts from all sources amounted to £4,710; the expenditure, £2,510; leaving a net balance of *two thousand two hundred pounds* to be divided equally between the Preston Working Men's Club and the Avenham Institution. Such a result needs no comment. It speaks volumes in favour of the earnest and persevering manner in which the exhibition committee accomplished the fulfilment of their self-imposed task—a labour in which they met with the cordial assistance of all classes, from the Duke of Devonshire to the humblest artisan. The full measure of their success—the greatest yet recorded in the history of Working Class Industrial Exhibitions—will be better comprehended when we consider that at Wakefield, which had previously headed the list, the number of visitors was only 186,000; while at Birmingham, with its teeming population and surrounding network of densely-peopled hives of industry, the visitors scarcely numbered 120,000. Hence it becomes of some importance to discover the secret of the extraordinary success of the Preston Exhibition. The mystery is not one incapable of solution. From the very first the promoters had a purpose in view—an aim to attain—and they never relaxed in their endeavours, never flinched from the difficulties with which they had to contend, never allowed their hearts to falter or their hopes to become dimmed, until the goal was all but reached, and success rendered certain. The lesson of energy, determination, and perseverance thus afforded by the Preston working men, cannot fail to exercise a beneficial effect upon their toiling brethren in other parts of the country, and to foster that spirit of mutual emulation, to the continued development of which we must look in no slight degree for the real social and moral elevation of the industrial classes of the land.

Art and Handicraft.

II.—THE PRIMARY WANTS OF THE ARTISAN AS *A WORKMAN.*

THE great purpose of the workman in devoting any portion of his time to the study of art, is, or ought to be, the improvement of his handicraft, especially if this handicraft is of such a nature as to require a knowledge of art as an element, which is certainly the case in an immense number—probably, the majority—of employments.

In saying this, it is by no means intended to decry, or in any way undervalue the study of art by any workman, whatever may be his pursuits. That there is a manifest and decidedly healthy tendency in this direction amongst large bodies of working men, whose daily labour lays far away from the region of art, is a gratifying fact, proved most indisputably by all the Working Men's Exhibitions which have been hitherto got up, either in the metropolis, or the provinces. But whilst admiring the ingenuity, industry, and perseverance frequently displayed in these efforts, it could not fail to strike any observant person that the element of directness of purpose to some distinct and useful end was for the most part wanting; and that this was generally the case just in proportion as the artisan had deviated from the track of his own industrial calling, if that calling had any relation whatever to art. Possibly, the fact of being left in perfect freedom to carry out his own ideas, untrammelled by the peculiar notions of a foreman, or the foregone conclusions of an employer, often led to this result. Now, in all such cases it should be remembered that liberty without law is licentiousness, and that any artistic or scientific pursuit followed without such specific rules of action as may be necessary to carry the worker forward with some steadiness and fixity of principle to the end he has in view, mostly begets incessant difficulties in progress, and ends in failure, more or less marked, as a result. Unhappily, this failure, so evident to the looker-on, is not always so distinctly seen as it is desirable it should be by the earnest and enthusiastic, but mistaken worker; hence the bitter disappointments which have so frequently resulted after the adjudication of the prizes given in Working Men's Exhibitions. The fact is, the worker had aimed at reaching one standard—if, indeed, he really set up a distinct standard at all—and the judges, bringing a wide experience, and the test of principles, not perhaps always true, but still such as they felt fully justified in acting upon, were adjudicating according to a totally different measure of excellence.

Now, the painful and sometimes ludicrous results which have followed the efforts of working men—yes, and women too—in the direction of art, might have been avoided by at least something approaching to a preliminary training for the work they were about to undertake. Would they expect, in any ordinary pursuit in which they were engaged, their knowledge of the requirements of which enables them to see and appreciate all the difficulties of working at successfully, that a stranger totally ignorant of what he or she was about to undertake, would be likely to be successful, even in a remote degree? Would any one of them expect to write an intelligible letter without knowing how to read, or even successfully write the letters of the alphabet and put together single words in an intelligible handwriting? Yet it is not too much to say, that many art efforts are frequently begun with an utter absence of this amount of elementary knowledge of the thing to be done. This should not be, because it need not be. The workman really desirous to improve himself and employ even his leisure hours in something which interests him on account of its relation to some ideal of beauty or taste, however humble this may be, can, if he seeks it, easily obtain elementary instruction which, so surely as he once commences in all honesty and earnestness of purpose, will as surely reward him for his pains.

All intelligent and thoughtful persons must have realised the delight with which for the first time they have seen the principle of some familiar subject, whether they may themselves have suddenly discovered it, or had it explained to them by some friend or teacher. Thus, the pleasure and interest is always very great with which the art-student sees for the first time that all the complicated forms of a rich piece of ornamental work can be brought down to the simplest elementary lines, and that the great law of repetition has much more to do with the beauty and interest of the work than any special difficulty in its construction or execution. Even when the novice in elementary drawing is shown, as he ought always to be shown, the true use of his eyes in seeing, and the mechanical construction of his hand as a drawing instrument, or the simple geometric fact is pointed out to him that all forms must be represented by two classes of lines—the right line and the curve—whilst the invariable character of the former is at all times a positive test of the variable character of the latter, he gets an insight into the subject of the art of drawing which opens an entirely new field of operation to him; and the mere "rule of thumb" methods which he might have been pursuing prior to such insight, become positively distasteful to him, and he sees how much time he has been wasting in working without fixity of principle and aim, thus losing that force which, as already stated, is inherent in directness.

The artisan ought thus to see that, as *a workman*, he is directly interested in art in its highest, best, and most distinct form, or that he really has no true interest in it. He is, after all, the true executant, whatever amount of thought or direction he may be indebted to for the full utilisation of his skill. Though he may not be the designer, he will be all the better workman for understanding, not partially but thoroughly, what the designer intends. To do this, he must be, in some degree, at least, a designer himself; for if he is not this he will be little more than a machine. Intelligent work is happy work. To know why anything is to be done is to half know how to do it.

Let the workman, then, rest assured that sound elementary preparation for any art-work in which he may be engaged as his daily pursuit, or desires to engage in as the employment of his leisure hours, will be well spent at all times, but better spent at the beginning of his career than at any other period, since then it will form the foundation for the future. Now, although, in common with every other kind of education, art education is best begun while the student is young, let no working man really in earnest believe that it is too late for him to begin, if he has made up his mind to it, and decides to begin in the right way. Experience has shown that old heads wise enough to become young students can do very notable things in art under judicious direction. The difficulty, in nine cases out of ten, is to get them to begin. The disinclination of grown men to sit down in the same class with boys is, no doubt, very great, and the objection is often well based; but a judicious teacher would take care to provide against that, and arrange to always accommodate an adult elementary class when it was distinctly seen to be necessary. "Where there is a *will* there is a *way!*"

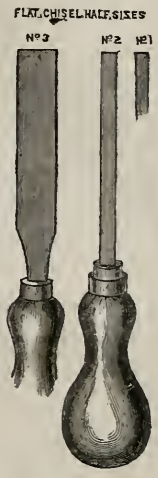
GEORGE WALLIS.

Carving in Wood.

(Concluded from our last.)

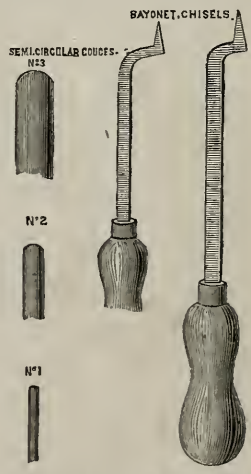
As regards patterns, we should recommend simple arabesque designs, in low relief, for a beginner; and, when further advanced in the art, foliage, flowers, and fruit, all of which should be studied from Nature, the taste and skill of the carver being displayed in the selection and general arrangement of the various objects, as well as in their execution. Subjects in high relief should not be attempted until some proficiency has been attained in the art. Those who intend to make wood-carving a regular profession should take lessons of a professional carver; but for the benefit of those who have no opportunity of obtaining the instructions of a master, we subjoin the few following rules, which will be found useful:—

In the first place, procure a small piece of *sycamore*, as being the softest wood of a close grain, and, therefore, the most easily worked by a beginner: have it cut and prepared by a cabinet-maker. If designed, say, for a book-stand, it should be polished on all parts excepting that designed for carving; the hinges should be screwed in on one side, but the stand should not be put together till the carving be executed. If a box be the subject for carving, all the six parts should be completely prepared for being put together—that is to say, the mitering or dove-tailing should be done, the lock put in, the hinges likewise; and then, of course, great care should be taken of the sharp edges to form the corners. There should be a space left unwrought between the carving and the edge, which the cabinet-maker would do well to mark out, by sinking a line all round



with a broad chisel. This will much assist the carver. The polished portions of the wood might be protected with paper or leather during the process of carving.

In commencing operations, the first instrument to be used is No. 2 straight chisel; the pattern having previously been sketched on the wood, or cut out in card laid upon it, and traced by drawing a pencil all round its outline, the card moved onwards as required. To persons not much accustomed to drawing, this will be found an easy plan. The chisel should be taken in both hands, and the



outline of the pattern, as well as the boundary line of the work, sunk by firm, yet gentle pressure. As the carver proceeds, he should excavate little by little with No. 2 semi-circular gouge, sinking straight down and excavating in turns, till the right depth of the foundation be reached, and the whole pattern completely blocked out square. He should then take one of the bayonet chisels, and commence levelling the foundation, which is the most difficult part of the whole work. But before we proceed further with these directions, the carver should be warned to observe whether there be any curled tendrils, requiring, in the first instance, the sinking of a round hole in the curl; because, if so, this must be done by means of a semi-circular gouge *before* the outer edge of the curl be cut out. Otherwise (were it attempted afterwards), the sinking of the hole would be likely to burst the wood in the parts

against the grain. Observe, again, that in the first blocking out, when two incisions have to be made—one with, and one against, the grain (the two incisions meeting each other)—care should be taken to cut across the grain first, and then with it, otherwise the wood will probably be split too far. Lastly, when blocking out a delicate object, such as a tendril, small twig, or berry, the incisions should always be made *beyond* it; cutting from, but never towards it. Thus, when one side is cut out, the wood should be *turned* for cutting the other side of the twig, the sculptor always keeping it *between* himself and the edge of the chisel, because he involuntarily presses the instrument outwards away from himself; so that, were his work beyond the edge of the chisel, it would be broken through, especially if against the grain. It may be here observed, that where delicate objects can be so arranged as to run with the grain, they are thereby the stronger; and, in designing a pattern, this should be invariably borne in mind; as also, that the knots should be used, if possible, for berries, or grapes, &c., and the hardest parts of the wood employed in the design, rather than left to be levelled, and to form the foundation.

But to return to the gradual process of carving. When the holes are sunk, the entire pattern blocked out, and the foundation tolerably levelled, the carver should commence shaping the leaves by using No. 3 flat chisel; sloping it as intended to lie—some parts in high relief, and some lying flat on the foundation. He should then mark out the veining of the leaf firmly with the same instrument, and with a semi-circular gouge proceed to hollow out the necessary indentations between the veinings. After this, he may slope away the thick parts underneath, to disengage it (apparently) from the foundation, then polish it with some fine glass-paper, rubbing with the grain, and, lastly, point all the edges with a very fine penknife. Should he wish to disengage a branch from the foundation, it may be done by carefully sloping a sharp chisel inwards on both sides under it (contrary to the general rule in carving, of not cutting towards an object), and when sufficiently thinned, he should use the penknife for cutting through and clearing the opening. This will require the utmost care. It must ever be remembered that carving requires a delicate hand: where one incision *might* effect the purpose, use *two*, and it will be better done. It is impossible to be too gentle; and the only circumstances under which force must be used is when first sinking, or blocking out the pattern.

All the work—sketching, sinking, and the purposes of the gouge—may be done by lamp or candle-light; but the levelling is an absolute exception to the rule, as it requires the clearest daylight; the eye being more deceived at night than would be imagined by the uninitiated until the fact is proved by examination in the morning of the work done at night. Care should also be taken that the subject or design should bear much the same proportion throughout—the various parts balancing each other; and the same precautions should be taken in regard to the spaces showing the foundation.

Although sycamore be recommended for beginners, *Irish walnut* is more satisfactory for those further advanced. They should, however, be on their guard lest American walnut be given instead: this being stringy, soft, and with little, if any, pattern in the grain. The light-coloured parts of walnut are those nearest the bark, and are softer than the dark. Beware of any appearance of yellow in the wood, which shows it to be rotten. Timber merchants generally oblige non-professional carvers to buy too much wood, and a good deal that is practically useless. Hence it is better and cheaper to procure a fancy piece from a cabinet-maker, who will readily prepare it for the work of the carver.

In making a box, the screws should be remembered in drawing the pattern, and the space they require left sufficiently thick. Beware of so planning the design as to have to sink for the foundation over it.

The best subjects for flower-carving are lilies of the valley, oak-leaves and acorns, convolvulus leaves and flowers, ivy wreaths, and grapes, with their leaves and tendrils. It will be found necessary to sharpen the tools continually during each day's work. Flowers, such as the rose, fuchsia, and others, which require attention to extremely minute details, should not be attempted by the beginner. The simpler the objects copied at first, the less the risk of failure. Many of the foregoing hints may appear superfluous; but good work may be often spoilt, and the sculptor disheartened, by reflecting too late; besides, "experience is a hard master." Should a berry, or any small object, be accidentally broken off, if not easily glued on again (which *must* be effected when part of a *branch* is broken out), it might be well to dispense with it; and to remove, if necessary, some other object of similar size, which formed a *balance* for it, so as to keep the proportions, if possible, correctly throughout the design. Figure-carving should never be attempted until the carver is perfect in the reproduction of foliage and ornament, and even then some knowledge of figure-drawing and anatomy will be found necessary, if the carver be desirous of avoiding anything approaching to failure. Grinling Gibbons' masterpieces were composed principally of fruits and flowers.

In conclusion, it may be well to add that the price of each tool, without a handle, is about a shilling (the handles are about twopence each), and that it would be well to procure a little leather razor or dressing-case, which may be rolled up, for holding the tools, as they would rattle about in a box, and become injured. It may also be well to observe that the three gouges should be respectively of the same size in the breadth of the blade as the three flat ones.

How We Saw the Old Year out and the New Year in.

NOT this year, but last—for this year began on a Monday; so, of course, "seeing the old year out," as some people like to do, was out of the question—we determined to make a night of it; but not a morning too. That style of thing does not suit our plain ways. Early to bed and early to rise makes you look fresh and bright in the eyes. Your heart will be light and your countenance clear; so we'll go to bed early, Nelly, my dear. I declare I almost get poetical, or at least run off into a kind of song when I look at my wife's fresh face early in the morning, and think that, though we have been married ever so many years, and brought up sons and daughters, there's a good deal of youth left yet to both of us. We have lost a little of liveliness, perhaps, but we have not lost the power of enjoying life and its good things, and seeing a great deal that is good and beautiful in the world; and that, I take it, is a sign of a youth which is not exactly to be reckoned by the number of years we have been in the world.

Perhaps the thought that we are really a year older than we were on the last day of 1863, makes me a little sentimental, which generally is not much in my line, for I like a joke, love to see a smile, and make a good deal of fun with my mates when it does not hinder work, and sometimes we work all the better for a good laugh. But, sentimental or not, my wife and I always like to see the old year out and the new year in; and when twelve o'clock has chimed, and the bells strike up, we feel somehow very happy, say good night to the big children who sit up with us, have a look at the little ones who are fast asleep in their beds—you should see little Lizzie cuddling her doll, just as her mother used to hug her when she was a tiny baby—and then go to bed, hoping to wake up in the morning with a determination to make the best of the New Year.

This is how we saw the old year out. When I came home from work I found Nelly had settled to have tea in the parlour instead of the kitchen, where we generally have our meals. She expected me to appear surprised, so, of course, I pretended to be; though, bless you, I knew all along what she was going to do, for she did just the same last year, and the year before that, and, in fact, every year since we have been married. And she had put on her best dress, and a new cap, with just a little bit of cherry-coloured ribbon twisted in and out; not too much of it—for Nelly has a good taste in colours, and knows when to stop—but just enough to set off her brown hair, which is as thick and bright as ever it was, and not a speck of grey in it yet.

"Good evening, Mr. Tom," she said. "Will you do me the favour of giving me your company to tea?"

What I did give her was a good kiss. "Me one, too, daddy," called out little Lizzie; "kiss me." "And where's mine?" says Polly, who is three years older. "And mine?" "And mine?" call out three or four others; and so we kiss all around, and then I said—

"Why, Nellie, what a wonderful cap you have on! I can make a good many curious things in the shop, I can, but I couldn't make that cap if I tried all day. But I say, Nellie, if I am going to a tea-party, I must put on my visiting clothes, you know, or perhaps the lady of the house will say I don't treat her with proper respect."

"Go along with you, and make haste, then. The tea is made, and so is the toast; and there's a rasher of bacon, in case anybody should like it," she said, just as if she did not know what a treat a nice rasher off the streaky part is with tea.

"Shouldn't wonder if I had got some shrimps," I said, "just for Lizzie, and Polly, and Billy, and that young Turk Alf, to look at, and study natural history—not to eat, of course."

While they were all laughing, I ran away to have a good wash, and put on my Sunday suit, and a new black necktie, which I saw on the drawers, wrapped up in paper, with "For father" written on the outside. Then I came down, and if we didn't all enjoy our tea it was a pity. I think my wife is out and out the best judge of a piece of bacon you could find anywhere, and as for the shrimps, they disappeared in no time. There was actually a cake, too; and I was obliged to eat a bit of Lizzie's slice, for, as she was sitting on my knee, and would push it into my mouth, what else could I do? How she did laugh when I made a shrimp drink by hanging him over the edge of a teacup, so that the tea rose up through him, and ran down into the saucer. I don't like to bother the young ones with science when they are enjoying themselves; but if I had told them that that shrimp was really a syphon, I dare say they would have understood the principle at once.

When tea was over, Polly helped to clear away the things, and mother—I always call her mother when the children are about; she likes it, and says that, as a title, duchess, no, or even queen, is not to be compared to it—swept up the hearth, and we pushed the table back, and sat in a circle. Somehow, Billy crept close to his mother, and Lizzie was upon my knee in a minute, and Polly sitting by me with her fat white arm looped in mine.

Of course there were a good many little things to chat about. What I had been doing all day, and what they had been doing at home. I told mother what a big engine we were making on a new construction, and she told me how she thought she had lost little Billy.

"I could not see him anywhere, father," she said, "and had sent Polly to look for him, when Mrs. Wilkins called over the wall, 'Here's one of your boys here.' 'Is he upside down?' I asked. 'Yes,' she said, 'trying to stand on his head against the wash-house.' 'Then it's Billy, I know,' said I; 'for upside down he always is, and ought to wear his boots on his hands.' How's Charley Haynes getting on, father?"

Charley works in the same shop as I do, and ought to do well if he liked; but he is one of those men who never make the best of anything. He rather looked after Nellie when she was a girl, and once I was nearly jealous of him; but she said she did not like a man who would not stick to his work, and at last he married a girl, with a pretty face and a liking for artificial flowers, but for very little else; and a queer home they have, that's a fact.

"Well, mother," I said, "Charley and his wife are going to see the old year out at the theatre. She has bought a dress at a ladies' wardrobe shop—you wouldn't look at it, mother—and he has picked up a second-hand coat, which don't fit him, and a hat which is as shiny as the coat. That's their notion of enjoyment, but not ours, mother, is it? Sykes, and Wilson, and Robinson, and two or three more, are seeing the old year out over a tripe supper and cards. There will be too much drink about, mother; and if they don't lose at least half a day to-morrow, I shall be surprised."

So we chatted on, and then Nelly ran away to prepare a little treat, in the shape of a supper of hot sausages. We are satisfied with a bit of bread and cheese generally, but this was a special occasion. The little ones had gone to bed, and Nelly number two (our eldest girl), and Tom junior (that's our biggest boy) sat up with us. Tom had to tell me about a book he had been

reading (we have a good shop-library for those who like to subscribe), and young Nelly was helping her mother with a little bit of stitching. Once or twice I looked at my watch, for twelve o'clock was drawing near.

"There they go! there they go!" called out Tom and Nelly, as the bells struck up. "A happy new year, father and mother—a happy new year."

We sat for a minute or two thinking over old times, and watching the faces of the young people; then we knelt down, and, while the bells were still clanging out merrily, we reverently asked that all the evil of the old year might be forgiven, and that the new year might make us wiser and better, stronger for duty, and more loving to all.

I have read that bells were once rang to drive away evil spirits. I hope they drove away bad thoughts from us, and welcomed in new-born influences and a better time.

That is how we saw the Old Year Out, and the New Year In.

Friendly Societies.

SUGGESTIONS FOR THEIR ESTABLISHMENT ON SOUND PRINCIPLES.

JOHN TIDD PRATT, Esq., the Registrar of Friendly Societies in England, has recently issued a series of instructions, the object of which is to promote the general welfare of the working classes, by enabling them to make provision, upon sound principles, against the natural evils and exigencies of sickness, old age, and death, and to act on those principles of mutual assurance and support which are now so generally adopted by the more opulent members of society, and to guard them against the many plausible but ruinous schemes by which they are too often deceived. In a society founded on the tables furnished by Mr. Pratt, it is as certain as it is possible to be, that the benefits subscribed for by the members will be received by them. The sickness tables cease at sixty, sixty-five, or seventy years of age, up to which period the data upon which they are founded are well tested. The annuities, or old age pay, commencing at sixty, sixty-five, or seventy, and the sums payable at death, will be guaranteed by the Government. No further certainty in these respects is attainable. Every member should be at liberty to subscribe to one or all of the objects, according to his ability or inclination, with the exception that persons insuring against sickness must also insure for medical attendance as long as they reside within the limits of the society; and females, as well as males, may subscribe for any of the benefits, except relief in sickness. Mr. Pratt furnishes examples from the tables, from which persons may select such benefits as they may think fit to subscribe for. All money received for sick-pay, endowments, and expenses of management, should be invested in a savings bank, on Government security, or on the securities authorised by the Friendly Society Act.

The management of the society should be vested in a committee, consisting of honorary and benefit members, or of benefit members only; and there should be trustees, a treasurer, visitors, secretary, and auditors. The only paid officers should be the secretary and auditors. The accounts should be kept so as to show the contributions paid to, and benefits paid out of, the fund subscribed for each particular insurance, as well as for expenses of management. The society should be self-supporting, for which purpose each member should be required to pay a small sum per month for the expenses of management; and the place of meeting should, if possible, be at some public institution or schoolroom. If that cannot be obtained, and there is no other place except an inn or a public-house, a certain fixed payment should be made for the use of the room, lights, and fire, with a stipulation that no beer, &c., should be brought into the room until all business is concluded, when each member should pay for any refreshment he may require. When an anniversary or annual feast is held, the contribution thereto, and attendance thereat, should be voluntary, though there seems no objection to a rule, that every member, who lives within a given distance, should have a ticket sent him, which, if not returned at a certain time—say a week before the day of the feast—he should be required to pay for. In a society formed on these principles, every member will have to pay only such contributions as may be required by the rules and tables for the benefits he wishes to receive, and there will be no compulsory charges for beer, feasts, useless paraphernalia, or other extras.

BENEFITS.—The benefits assured should be—1st. Medical attendance. 2nd. Weekly allowance in sickness until sixty, sixty-five, or seventy. A small monthly payment must be made to defray the necessary expenses of management. Immediate Annuities or Deferred Annuities, from £1 to £50 per annum, commencing at sixty, sixty-five, or seventy, and sums payable at death from £20 to £100, may be secured as hereafter mentioned. Care should be taken to admit as members insuring against sickness, such persons only as are of good health and good moral character, and certificates to that effect should be produced before a person is admitted a member. No entrance fees should be required, nor should any fines be incurred for non-attendance, or not serving office, except that of visitor. The tables recommended by Mr. Pratt for relief in sickness have been approved by experienced actuaries, and the premiums required are the lowest compatible with safety to the insured. Each member will pay according to his age at the time of admission, and will, therefore, bear his own burden, so that the young will not have to pay for the increased risk of the aged. The accounts should be kept in such a way as to enable the annual statement to be made out in the manner directed by the Registrar, pursuant to 18 and 19 Vict. cap. 63, and should be audited quarterly by persons not members of the society.

MEDICAL ATTENDANCE.—The contributions for medical attendance, as agreed with the medical practitioner (which is generally 4s. per annum, or 4d. a month), should be paid when the member is admitted, quarterly, in advance. This benefit is claimable from the time of admission.

SICKNESS BENEFIT.—Every industrious and provident person should, immediately he begins to seek a livelihood, insure against sickness. Savings banks afford no provision against sickness; for, suppose a man to have saved 1s. per week for one year, and then to be assailed by accident or ill-health, he will, at the rate of 10s. per week, consume his savings in little more than a month. On the other hand, a member entering a society between the ages of sixteen and twenty-three, may, by a payment of 1s. per month only, secure to himself an allowance in sickness of 10s. per week, according to the rules and tables. The society's allowances in sickness are assured, subject to its rules and tables. Allowances of 10s., 15s., or 20s. per week may be assured for, the rates of payment for which are equitably adjusted, according to the age of each member on admission; and the period to which the benefits are insured for—until sixty, sixty-five, or seventy years of age but should in no case exceed two-thirds of what he can earn in good health; and no member should be allowed to belong at the same time to another society for the same benefits. Male members can only be admitted to insure in this fund between the ages of sixteen and forty; members free six (or twelve) months after admission. Every member insuring for sick pay must also insure for medical attendance. The payments in case of sickness to be made in full for twenty-six successive weeks; half the amount for the next twenty-six weeks; and if the sickness shall continue, the member shall be reduced to quarter pay; and when any member has had full pay for a less period than twenty-six weeks, or half pay for a less period than twenty-six weeks, he shall not be allowed to begin his full or half pay over again on the renewal of sickness, until he shall have ceased to receive any pay whatever on account of sickness for six calendar months, and returned to his usual employment, or some other by which he shall gain a livelihood; but if he fall ill within that time, he shall be placed in the same situation as when he ceased to receive any relief, and shall receive such relief, and no other, as he would have received had no cessation of his sickness occurred.

EXPENSES OF MANAGEMENT OF THE SOCIETY.—A payment of 2d. per month in advance is required from each member.

ACCOUNTS.—A separate book, a clear and distinct debtor and creditor account, and a separate fund should be kept for each benefit. The books, receipts, investments, and accounts of every kind, ought to be thoroughly examined by some competent disinterested person, once a quarter. "Instructions in Book-keeping for Friendly Societies" may be had on application to the Registrar.

ANNUITIES AND SUMS PAYABLE AT DEATH.—The Postmaster General is empowered, under the Act 27 and 28 Vict., cap. 43, to insure the lives of persons of either sex between the ages of sixteen and sixty, for not less than £20, or more than £100. He is also empowered under the same Act, to grant Immediate or Deferred Annuities of not more than £50 on the lives of persons of either sex, and of the age of ten years and upwards. The persons whose lives are insured, or to whom annuities are granted by the Postmaster-General, have direct Government security for the payment of the money at the proper time.

Certain post-offices (the names of which may be obtained at any post-office), have been opened for the receipt of proposals for the insurance of lives and the purchase of annuities; and forms of proposal, with full instructions for filling up and delivering these forms, may be obtained at these post-offices.

Tables of the premiums to be charged for the insurance of lives, for the grant of immediate annuities, for the grant of deferred annuities, or deferred monthly allowances, without return of purchase money, and for the grant of deferred annuties or deferred monthly allowances, with return of purchase money, have been printed, and may be seen at the post-offices which have been opened for the receipt of proposals. These tables may also be obtained of Messrs. Eyre and Spottiswoode, London. The price of the tables for the insurance of lives, and the grant of annuities without return of purchase money, is 3½d. The price of the tables for the grant of annuities with return of purchase money is 2d. If sent by post, 5d. is charged in the one case, and 3d. in the other.

Persons desirous of providing for relief in sickness or old age, or of securing a sum of money payable at death, should, before they become members of any society on the application of agents, obtain a copy of the rules, and should not be satisfied with a card on which payments only are entered. They should also ascertain whether the rules have been duly certified, and particularly in what manner they, or persons claiming on their death, are to proceed in case of dispute; as in societies established in London, Bristol, Liverpool, or Manchester, &c. &c., disputes are by the rules of the greater part of these to be decided by arbitration in the place where the society is established—that is, a claimant living in Manchester having insured in a society established in London, would, in case of dispute, have to attend an arbitration in London; in addition to which, the parties insuring should ascertain the names of the trustees and officers of the society, their residence and business, as well as their respectability. By the 27 and 28 Vict., cap. 56, ss. 4, 5, no stamp is chargeable on any probate of a will, or letters of administration, with or without a will annexed, granted in England or Ireland, or inventory to be exhibited and recorded in any Commissary Court in Scotland, of the estate and effects of any person deceased, in any case where the whole estate and effects of the deceased person dying after the 25th July, 1864 (exclusive of what he shall have been possessed of or entitled to as a trustee for any other person or persons, and not beneficially), shall be sworn not to exceed, and shall not actually exceed in value the sum of £100. This provision will be found of great benefit to depositors in savings banks and members of friendly societies, particularly with reference to the easy and comparatively inexpensive mode of now obtaining, by personal application at 12, Great Knight Rider Street, Doctor's Commons, London, or at the office of the District Registrar in the country, a probate or letters of administration. It should be distinctly understood that the certificate of the Registrar is confined to the fact that the rules are in conformity with law, and does not apply to the sufficiency of the contributions to meet the payments. This is the province of an actuary. If the rates of contributions and payments have been prepared by an actuary, that fact is stated in the Registrar's certificate. The tables alluded to in the foregoing suggestions can be procured on application to the "Registrar of Friendly Societies in England," 20, Abingdon Street, Westminster, S.W.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JANUARY 13, 1866.

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Diversity of the Working Class.

When the existence of working men as a body is brought before the mind, it is surprising how the subject grows as it is contemplated. It tasks the imagination to take in its multifarious parts. The producing power of the nation increases every hour. The working class is becoming the formidable class—not formidable as was formerly feared, in the sense of being dangerous, but formidable in the sense of vastness and beneficence. It is the great creating class.

It is quite time that an adequate periodical should exist, to represent this ever-developing and stupendous interest. The working man is a very composite person. The French idea of him as a *prolétaire*—one who works for wages and has children—describes but one, and that not his greatest, characteristic. The British working man aspires to be something more—to be intelligent, saving, thinking, and improving; as well as industrious. Indeed, "working man" is becoming a name of honour. Political economists have brought idlers into discredit, even among the upper classes; and it is now no uncommon thing to hear noblemen, and persons of high social station, tell audiences, at mechanics' institutions, that they (the speakers) too are working men. Gentlemen now claim to be considered as working as hard as any mechanic, and it must be owned that great numbers of them do so work. Literary men, politicians, doctors, lawyers, clergymen, philosophers, are certainly among the hard workers. Even poets, considering how many of them labour at stubborn metres, may take rank among the working classes. Lord Palmerston, gay and jaunty as the noble Premier was, was well known to be a hard worker. True, he worked at making despatches, but that is quite as hard work as making despatch boxes; and often harder, when you have to defend the despatches after having written them. Lord Brougham has been one of the hardest working men of his age. The Chancellor of the Exchequer probably works as hard as any tax-payer for whose contributions to the State Mr. Gladstone is responsible. It is clear, then, that the term "working man" is rapidly acquiring a higher and more national significance than it ever bore before. It is no doubt destined to grow into yet greater reputableness and universality of meaning.

How has it come about that the labour of the working class has become so much more fruitful in later years than formerly? The answer is—by the infusion of thought into its ranks, and by the employment of thought in directing the activity of Labour. The hand-worker never went far, until the brain-worker stepped in to counsel him. Hand labour may be compared to the bone and muscle of Industry—but brain labour is the life blood that gives it vitality, and makes it grow. There is a further element, that of Capital. It is capital that sets the brain worker going. The judicious employment of capital is the birth of enterprise, so that the discussion, illustration, and delineation of the topics characteristic of the working man, as an individual, take a wide range; and our readers will be found in every section of the community, as well as the class peculiarly indicated by the term "working man."

The old form and even spirit of patronage of the working class is happily dying out—but there is a new form of patronage—that of intelligent discrimination of the quality of their work—which we hope will come in. It is the purchasing public who are the true patrons and best patrons of the working class, providing their patronage is given to excellence of workmanship rather than to mere cheapness. But this can only come about by the public becoming cognisant of what the working man's best aims are, which can alone enable them to extend an intelligent, honourable, and independent encouragement to work which displays thought, care, integrity, and, possibly, genius.

An Address.

TO THE WORKING MEN OF THE UNITED KINGDOM.

Brother Working Men,—A few words may not be inappropriate to you all—to friends, old and new—at the close of one, and the commencement of another period of mutual relationships. We have "rung out the old year"—we have "rung in the new;" and we trust that all of us have entered on a happy new year of earnest progress and rational joy. The way in which we hope in this, our special department, to help you, our fellow-workers in the great field of Life, to make that progress and win that joy, will be best explained by considering—

I. *Some of the Evils under which Working Men at present labour.*

What are they? "Insufficient wages," exclaims one. "Want of comfortable homes," replies another. "Long hours of labour," maintains a third. Very true, gentlemen. These, and many other evils, might be mentioned, under which different sections of your class suffer. *But* let us ask you a question. Did you ever see a human skull, and notice how the hard bone is hollowed and indented? Well, doubtless, you know it has been found that the soft, nervous matter inside—the brain—to a great extent, moulds and shapes that hard, bony shell, making it take such form as shall correspond to its own inward growth. In that fact, and in many similar ones to be found in animal and vegetable life, you have a type of a grand truth closely affecting our happiness and well-being generally—viz., that our outward circumstances are very much moulded by our characters and thoughts. It is also true that our characters are much affected by our outward circumstances; but people are too apt to notice only that part of the business, and to forget, or be ignorant of, the other far more important fact. The evil result of this is, that they too often spend all their force on trying to alter their circumstances, and take little pains about that inward force and power which really has most to do with shaping their outward condition. The rate of wages men earn, the sort of home they live in, the length of time they have to work, with many other material circumstances, depend to an extent which only a few among them at present perceive, on the education they have got, the strength of will and honesty of purpose they possess, their faithfulness to duty, the way in which they have used their *opportunities* in life, and on many similar points, all connected with the inward life, growth, and power of their intellect, conscience, affections, and will.

Now, whether you agree to all this or not, you will, at all events, allow that a man's education, &c., exerts *some* influence in shaping his after life—must help or hinder, in some degree, the removal of evils that oppress him, and the obtaining benefits which he ought to enjoy. *We* cannot—this Journal cannot—give you shorter hours, larger wages, better homes. Would that we could! But we may be able to help you in procuring these and other blessings which we long to see all men enjoying, if you care to accept what we can offer. Let us examine what that is, and how it may help you.

One great cause of the evils working men suffer from—so far as those evils depend on defective education—is the *narrow*, incomplete view many of them take of various questions, compared with persons of equal intelligence in higher social position. The mistakes working men make, and the misfortunes they suffer from this one cause, are very considerable, as I have had too much reason to observe during the quarter of a century I have lived and worked among them. Now, if you go into a large workshop in the dark, or with only a farthing rushlight, not knowing where the benches, lathes, or wheels are placed, you run a chance of knocking your shins or bumping your forehead against something much harder and sharper. You can't see the position and mutual relation of the different things in the shop. You must feel your way about slowly and cautiously, perhaps not finding what you want, after all; but if the gas were turned on, and a blaze of light filled the place, you would see at once where you are, and where everything else is—how to get at this bench or those tools, without cuts and bruises. Education is the light which enables men to understand *the true position* and relation of things and persons around them—to see where they themselves are, and how to get to the point they want to reach.

Then, again, in the dark we are apt to *exaggerate* the size and importance of objects and events. Working men frequently make serious mistakes owing to this cause, from which fuller information, or greater breadth of view, would have saved them.

Another frequent cause of working men's troubles are the *jealousies, suspicions,* and *quarrellings* that too often arise among themselves. There is no end to the mischief resulting from all this, whether in the workshop, the Co-operative Society, the Working Men's Club, or the Trade and Benefit Society, &c. I need not enlarge on this point. It is sufficiently well understood by most working men. But what they do not so thoroughly realise, perhaps, is the extent to which this evil also, like the last, is caused or fostered not merely by that want of higher principle which is needed by us all, but also by their not seeing things and persons in greater light, not understanding more clearly their mutual relations and position in the world—by *mis*understandings, in fact—also by that same habit of exaggeration above referred to. Another source, however, of discord and bitter feeling undoubtedly often is the heavy pressure on body and soul of a working man's cares and toil, with (unhappily) little, perhaps, at home or in his education to cheer or divert his mind, and a great deal in his companions or his amusements to add to his irritability and ill-feeling.

This last suggestion reminds me of one more, and a gigantic cause of the working man's troubles—viz., the extent to which he is dependent on the *public-house* for his recreation and social intercourse as well as for business purposes, after the day's work is done. Working men cannot in general invite friends to their own homes, nor have all those pleasant little parties, or chat with friends there, which so often refresh their employers. Keeping no servants, wife and daughters hard workers like himself, having but one living-room, and probably several children, without books, drawings, games, or music, or plenty of space and fresh air, an over-tired man, with little education, unfortunately cannot always get the change and refreshment at home which he unquestionably needs quite as much as richer men, and we cannot wonder that he seeks it at the public-house. There, too often, he forgets that he is a man, with all a man's rights and duties, with all the privileges and blessings in which, as an Englishman, he ought to share; and as, in that case, he was too probably little more than a machine while at work, too often he becomes little better (sometimes worse) than an animal when that work is done.

We come now to the consideration of—

II. *Some of the Remedies for those Evils.*

These, I think, will be found, according to what has been said above, and as far as we have the power to offer them, to consist—

First, in a man's obtaining as much information as reading and conversing, listening and looking

can supply—gaining as much knowledge as others and ourselves can provide on all subjects connected with your work and its remuneration, your domestic comfort and recreation, your position in society and well-being generally. That information, with the views and plans that may be suggested by it, will be given, as far as space allows, in the various departments of the WORKING MAN, whereby we hope, at all events, a few jets of light will be "turned on," that may help some to avoid breaking their shins, and worse misfortunes, as well as assist you to obtain various benefits for those dear to you and for yourselves.

But, secondly and especially, I would ask you to accept information that may not seem at first to bear directly upon your pecuniary, domestic, or social well-being, but which the wisest among you rightly believe you will find of the greatest value. I mean information respecting what great folks and little folks have been doing in various departments of life, in former times and the present age, both in this country and elsewhere—what the statesmen and warriors, the heroes, prophets, poets, and philosophers of the world have been attempting and accomplishing—what they suffered and how they worked, how communities and states have risen and declined, how the great masses of the people have fared amid all the chances and changes of empires and trades. If you, the hand-workers of England, can find time to read what we shall labour to put before you on these matters, you can see how it may possibly help you, by referring to what I said above respecting the evils many of you suffer from. See how much of that *narrowness* and incompleteness of the views you sometimes take, would be remedied by knowing more fully what has been done and suffered by other people—seeing how they worked, prayed, bled, triumphed. Such knowledge, at the time you acquire it, may seem to have no practical bearing; but gradually you will find it exerting a powerful influence on your condition. It seems a very unimportant matter which way that man yonder is turning those iron rods; but wait awhile. When the moment comes for determining whether your railway train is to go to Birmingham or to Plymouth, or to neither, but to be smashed to shivers, you find it makes a great deal of difference whether "the points" have been turned the right way previously. Varied and accurate information, knowledge about a great many things not apparently connected with the wages you are getting, or the homes you live in, or the occupation of your children, or the price of bread and meat, will often exert a wonderful influence on your happiness, just because that knowledge has "turned the points" the right way in your mind before the time for action came—has given you that breadth of view and that perception of the actual relations of things which enables you to form a wise judgment—a correct opinion as to where you are, and whither you ought to go. Much time, also, as well as bruises, may be saved by getting plenty of *light* in this world. The middle and upper classes in this country are at an immense advantage compared with many working men, because of the greater breadth of their views which they gain from their larger culture. Will you let us help you to supply this defect, if you labour under it, for your own sakes—for the sake of those you love—for the sake of *all* the other ranks and sections of this great community, who can never really prosper by the degradation or mistakes of their fellow-countrymen; who must be the better and happier for your progress, even as you must benefit by their prosperity?

See, again, how this increased knowledge helps to prevent that tendency to *exaggeration* to which I alluded above, as a frequent cause of working men's mistakes and troubles. We often attach undue importance both to things and persons, to measures, plans, events, simply from not knowing what has been done elsewhere, and on former occasions. Moreover, when we have only one or two ideas and facts in our heads, of course we think a great deal more of them. "As busy as a hen with one chick," says the proverb: ay, and as conceited, too, or, at all events, as liable to exaggerate its importance, is the man with one idea. But let him acquire a goodly number of ideas, and store up in his memory a fair collection of facts, and he can see a great many other things in their true proportions and position. Molehills will not look like mountains, nor geese be taken for swans. If a man is reading what they did in Holland three hundred years ago, or in Germany further back still, or in Italy when Garibaldi's great grandfather was in short clothes—a fellow-workman may think he is wasting his time; but I suspect he will be found all the more able to take a sound view of things in his Co-operative, Trade, or Friendly Society, for what he has learnt in history, though he or others may not exactly see why. A working man who has some knowledge of history and literature, will look at the question of an extension of the franchise, of a benefit club, of a strike, or of some limited liability company, with a much greater chance of avoiding blunders, than a man who has nothing to think about but one or two questions, and half a dozen arguments all of the same stamp.

HENRY SOLLY.

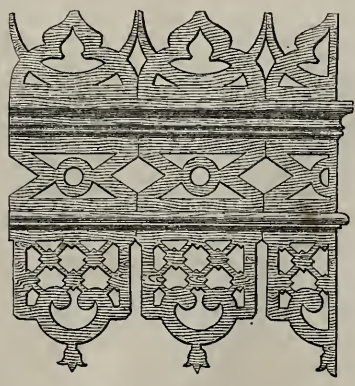
(To be continued.)

Art Designs

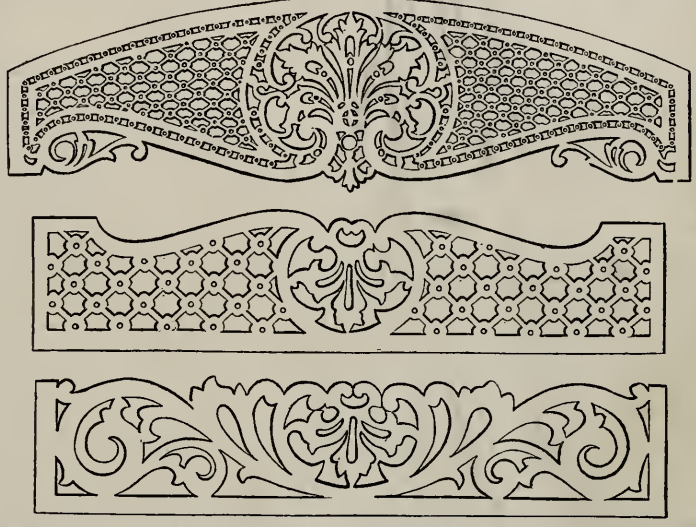
FOR USE IN TRADES AND MANUFACTURES.

ORNAMENTAL FRETWORK.

IN selecting our designs, we have preferred those of a simple and uncomplicated character, as being more generally useful and effective. It is a common error to believe that the more intricate and loaded the details of an ornamental design, the richer and more effective it becomes. So far from such being the case, the excessive use of elaborated details is frequently resorted to merely to conceal a want of design. Simplicity and grace should never, where possible, be sacri-



ficed to redundancy and heaviness. The designs given by us this week are capable of being utilised in many ways. They might suggest new shapes for ornamental ridge-work in clay, stone, or metal. They might also be found serviceable in the construction of articles of furniture, in which ornamentation has to be introduced, such as bookcases, cabinets, what-nots, &c. In verandah work, especially, they would be found useful. In nothing are we so backward as in this description of work, although it affords almost every opportunity for the employment of the ingenuity and taste of the worker. With some few exceptions, we have scarcely got beyond the upright sticks and crossed laths of our fathers, although the employment of perforated ornamental work has long been known in this country. In our industrial exhibitions few examples of ornamental fretwork have been displayed, a circumstance which would naturally lead a stranger to conclude that it was a branch of art-industry wholly unpractised here, although, in sober truth, there are many British artisans whose handiwork will bear the closest possible inspection with that of the continental fretwork manufacturers.



Some Fallacies in regard to Working Men.

BY THE REV. DR. BEGG.

ALTHOUGH a vast increase has taken place of late years in the wealth and influence possessed by working men, their social comfort has not always increased in the same proportion. In some districts they have made most successful efforts in the way of self elevation, but they are very far as yet, as a general rule, from understanding their own power for good; whilst their praiseworthy efforts have in some quarters been regarded with unjust and ungenerous suspicion. On the other hand, we see in Britain the tendency which all prosperous nations have exhibited, and which has been the main cause of their downfall, to form an increasing gulf between the two great classes of society—the rich becoming richer and the poor more depressed. In many of our richest cities a large class of persons are found, sometimes called the "dangerous classes," whose social position is in some respects lower than that of savages. We have the strongest conviction of the power of self elevation on the part of our working men to an extent unspeakably greater than has yet been realised—nay, we are convinced that they never will be elevated in any other way than by their own efforts; but as the result of considerable experience, we are also convinced that a number of floating fallacies exist, constituting to a large extent an unsound public opinion, and tending greatly to retard this good work. These fallacies exist partly amongst aristocratic and well-to-do people, and partly amongst the working classes themselves. To some of these we respectfully solicit the attention of our readers.

Many seem listlessly to imagine, for example, that the state of depression in which many of the labouring classes in our cities are found is necessary and incurable. They regard it as a necessary consequence of gathering men together in large numbers in cities, and therefore they look with a cold and heartless incredulity upon

all efforts in the direction of amelioration. They are even heard to quote Scripture on the subject, and to say, "The poor shall never cease out of the land." Admitting this, however, it is our duty to diminish the numbers of the poor as much as possible. But the fallacy lies here—that the working men are *not the poor*. No class of men in the community are, in a sense, more independent than the sons of toil, if they are only industrious and frugal, and if they will combine for their own self elevation. It is a pure delusion, moreover, to imagine that men combined in cities must necessarily lay their account with being surrounded with a mass of social degradation. On the contrary, the combination of wealth and intellect in large and prosperous cities, if only properly applied, ought to lead to the very opposite result. All physical appliances for the promotion of human comfort ought to be more abundant in a large city than anywhere else—especially than amongst the scattered houses and hamlets of a rural district. We see illustrations of the application of this principle in the magnificent draining operations of London, and in the bringing of the pure waters of Loch Katrine thirty miles, at great expense, to supply the wants of the people of Glasgow, so that every working man there can drink in his own home a fluid as bright and sparkling as ever supplies the palaces of kings. The same principle, however, is of indefinitely extensive application, and the opposite view is a pure fallacy.

But even when this is admitted, the idea is only, in some minds, more deeply rooted, that all improvements must be made by Parliament and public taxation, and that the working men are only a class of larger children, whose elevation must proceed, not from themselves, but from what is called a "paternal government." Now, of course, there are certain things in accomplishing which the interposition of Government, or at least of Parliament, is necessary, but this is true not only in reference to working men, but to all classes of the community. This is one of the great uses of Government; but beyond this, the lesson of self-reliance is one of the most important which can be taught to all ranks of the people alike. It is perfectly certain that the working men of the kingdom have enormous material resources, if they only knew how to take full advantage of them. Nearly the whole floating capital of the country passes periodically through their hands, and the great want is simply the power of retention or saving developed in a sufficient degree. Take, for example, in addition to the ordinary expenditure of the country, which all runs in this channel, the recent enterprise upon which probably the largest amount of capital has been expended—*viz.*, the Railway System of Great Britain. The expenditure here has been at least £400,000,000 of money. To whom has all this money been given? No doubt a considerable portion of it has been given to lawyers, engineers, and landlords, but the great mass of it has gone directly into the hands of the working classes—navvies, miners, workers in iron, furnace-men, masons, carpenters, and other classes of working men. Besides, consider the amount annually expended in upholding and working these railways, and the immense impulse thereby given to house building, commerce, and land improvement, all leading to a similar expenditure, the amount of which it would be difficult to calculate. All this goes to increase employment and augment wages, and is only one illustration of what we have stated—*viz.*, that the floating wealth of the country passes to a large extent periodically through the hands of working men, and that, therefore, they have great and growing means of self elevation. The abuse of this power in procuring noxious indulgences has often been justly calculated and commented upon as a proof of the resources of working men. It is more pleasing to contemplate the frugality and wisdom by which, to a large extent, this money is being employed, as a proof of the same truth. The vast accumulations in savings banks and in benefit societies of recent years, are worthy of notice. In Scotland alone it appears by a recent return that there is deposited in the savings banks nearly £3,000,000, belonging to nearly 150,000 depositors, and that one-half of this is in Lanarkshire, the very part of Scotland which has enjoyed the greatest material prosperity. By a return lately published by Mr. James Taylor, the honorary secretary, in regard to "the position of the Freehold Land and Building Societies held at 44, Waterloo Street, Birmingham, to June 1st, 1865," it appears that the following splendid results have been realised by the working men there, connected with one enterprise:—

Advanced on mortgage	£561,500
Now due on ditto	259,000
Absolutely redeemed	£302,500

The Flour Mill at Leeds, and the Co-operative Company at Rochdale, are well known to have realised similar great results. These, besides, are only samples—no doubt very successful ones—of what working men can accomplish, and are accomplishing, by their increasing wealth in all parts of the United Kingdom.

No doubt there are two elements essential to this success in any large degree—*viz.*, strict economy and hearty co-operation. The mottoes and maxims of working men must be, if they would really rise in the world, "Union is strength;" "A penny *hained* (saved) is a penny gained." All time is made up of seconds, the whole ocean of drops, the whole globe of particles. "Take care of the pence, and the pounds will take care of themselves." If these maxims were only acted upon by the whole working men of Britain it is difficult to say what they might not be able to achieve.

Here, however, a new fallacy comes in. Many well-meaning people startle at the word *Co-operation*. The idea of evil combinations and conspiracies, followed by revolutions, at once occurs to their minds. They forget that all good things are capable of abuse, but that the possible abuse of a good thing ought never to be regarded as any disparagement to its use. We see the noble power of co-operation in all great achievements—in the operations of the coral insect, of the bees and ants, to whom we are sent to learn lessons in Scripture. We see it in that wonderful railway system to which we have already referred—in the tunnelling of the Alps, and the girdling of the world by means of the electric telegraph—in all the operations of our joint-stock banks and limited liability companies. The higher classes never scruple to co-operate and combine their forces, and why should the working classes? Men have combined in vast organised masses to deluge the world with blood, and why should they not combine to diffuse and secure the blessings of the arts of peace? Nay, co-operation is Divine. As one has said, "The cluster is from God as well as the grape;" "Bear ye one another's burdens, and so fulfil the law of Christ." The work of the missionary in going down the great pit of human depravity whilst others hold the rope above, is an illustration of the blessings of co-operation. So it must be in all work of self elevation on a large scale at home. Indeed, it can be accomplished in no other way, and the process should be regarded with great complacency. The march of civilisation, as well as of Christianity, is essentially bound up with the persevering and successful application of this great principle. The workmen of Britain are no longer the serfs which their ancestors were, and it will not do to treat them as a kind of wards of Chancery, for whom everything must be arranged, and all whose wise and laudable movements in the way of self elevation must be watched with suspicion and distrust. But, besides, it is a thorough delusion to imagine that men are safe because they are dependent, and dangerous because they are prosperous and well-to-do. The case is precisely the reverse. If our nobility and wealthy men wished to raise a strong barrier around them and their just rights, they could not do it more effectually than by the diffusion of wealth and substantial comfort amongst the general community. Cobbett said, "If I were a ruler I would rule by flitches of bacon in the roofs of the cottages, for there is no revolution so dangerous as that which proceeds from the stomach." "Empty stalls make biting horses," is an old proverb. Ireland, the poorest, is at the same time the most turbulent portion of the United Kingdom. The *improvident* are also the *uneasy* classes everywhere. A diffusion of general comfort was the rule of Palestine under the immediate government of God himself, and experience proves that a working man with a little property takes as deep an interest in that property and in the Government that guards it, as if it amounted to millions. The man in Fife who was a great democrat when he had nothing, but who became a good citizen when he could say, "I have now a *coo* (cow)," affords a striking illustration of the true working of human nature. The possessory feeling is one of the most powerful elements for good, and the strength and safety of the social building is to be tested, not by the state of the attics and upper storeys, but by the state of its foundations.

The self elevation of the working classes is, therefore, one of the brightest hopes of the country. Instead of frowning upon it, or regarding it with coldness and distrust, all Christian and intelligent men should rejoice in its progress, and seek to direct all its movements for good.

Men who have Risen from the Ranks.

II.—GEORGE STEPHENSON.

Watt is an inevitable name in biographies of the nature we have undertaken, and must, in due course, appear here. We confess to a partiality for Pallissy the Potter. Ebenezer Elliott's—one of the few poets who was able to attend at once to business and song, who sold good iron and made good verses—is certainly an instructive life; but we elect this week to take George Stephenson.

It is a matter of pride in every coal mine in Britain that a pitman has a statue standing firm and proudly on the upper earth. As the traveller enters Newcastle, there meets him, in the spacious area between the railway station and the *Chronicle* office, the statue of George Stephenson, supported at the base by four bronze massive pitmen—a noble and appropriate statue. Never was statue won more worthily in all the annals of labour than this one of George Stephenson. The present writer was at the inauguration of it. Lord Ravensworth, who made the speech of the day, said, gracefully, "that it was one of the glories of his house—the glory on which his family prided itself—that they afforded the great pitman the early encouragement which led to his fame." This was true, and nobly said.

Not far from Newcastle—some eight miles—is the village of Wylam. The Carlisle and Newcastle Railway runs by it, and, as it were, on the margin of the line stands the house where Stephenson was born, on the 9th June, 1781. His father was a fireman in a Wylam colliery. His wages were twelve shillings a week, and on this slender sum he brought up six children, of which George, the great engineer that was to be, was one. Eight persons, boarded and clothed on eighteenpence a week each, may be fairly described as a working man's family with very moderate expectations.

Young George began his career as a cow-boy, on wages of twopence a day. He rose to fourpence a day at farm work, and afterwards commenced in the capacity of a "picker" in a colliery, at sixpence a day. Before he was sixteen years old, he was earning twelve shillings a week, when he exclaimed, "Now I am a made man for life." From his post of fireman—which, like his father, he held—he rose to be plugman, at somewhat higher wages. His duties as plugman were to see that the engine was kept well at work, and to descend to the bottom of the shaft and plug the suction tube, when holes in it betrayed themselves.

Up to the time when he was eighteen years of age he could neither read nor write. His sole education was the engine. It exercised a fascination over him. It was the wonder and charm of his life. He loved it like an animate thing. As children cut open the bellows to see where the wind comes from, so young Stephenson, in his leisure hours, took the engine to pieces, to see what the steam did, and how it did it. He thus came to understand the engine—to know all about it, and acquired so much skill in its ways of working, or stopping working (to which engines in those days were much addicted), that he acquired the fame of an "engine doctor," and many a wheezy, coughing, consumptive, rheumatic machine he restored to decent health.

He was thirty years of age before his average regular wages were a pound a week; but as he was never idle—always sober and thrifty, ingenious and fertile—he found means of increasing his income. He learned to sole shoes, and his greatest delight was to perform that operation

upon the shoes of a young maiden, one Fanny Henderson, whom he courted, and subsequently married. Then he made shoe lasts, which paid better; he cut out clothes for colliers' wives to make up; he became an expert at clock cleaning. Whether he discovered the art of boiling them is not recorded; but many wayward timepieces amended their manners after passing through his hands. All sorts of contrivances for diminishing wear and tear in colliery machinery were invented by him. He made such improvements underground that sixteen horses were found to be sufficient where a hundred were needed before. His value was discovered by his employers, and he rose into local importance, and commanded greatly increased wages.

His first great invention was the miner's lamp, since known as the "Geordie." Stephenson's lamp was invented prior to Sir Humphrey Davy's, and was a better contrived lamp for practical purposes. Sir Humphrey, better known, wealthy and popular, carried the day, and the colliery owners presented him with £2,000 and Stephenson with £100. He, however, had the good sense to accept it.

The wild, brave, adventurous, passionate, original, shock-headed Trevethick had a more daring genius in the same walk than Stephenson; but Stephenson was the healthiest minded inventor who ever arose. Sagacious, patient, persevering, modest, and sure, he never made a mistake, nor lost a friend, nor threw a chance away. His next discovery was the need of new tramways; indeed, he invented them. He mastered the principles on which they must be, and have since been, constructed, and found Lord Ravensworth and other far-seeing proprietors of colliery property, willing to aid him in constructing them. He went to school to learn to read, that he might study records of engineering improvements, and he soon invented the best locomotive then known. He made the first that would go. He did not, however, call it a "locomotive." He gave it a more graphic and sensible name. He called it a "Travelling engine." His talk as to what could be done was confident, but he never predicted until he had triumphed. When he had made his famous engine—which he called "Puffing Billy"—to go, he had a right to be confident; and, when distinguished people who came to consult him said, "But, Mr. Stephenson, the thing can't be done; you can't make a machine walk," he would reply, "Look at Puffing Billy. Billy does walk." He took them to Wylam, and said, "Wait till Billy comes up, and then judge for yourself." This was the most sensible thing to do.

In this way he satisfied and converted Mr. Pease, the eminent Quaker, who engaged Stephenson to construct the Stockton and Darlington Railway, the first ever opened in England. A prize of £500 was offered for the best travelling engine. Stephenson then built his famous "Rocket" engine. His was last on the list; but it was the first that was ready. Stephenson was always ready. His "Rocket" won in the great race which decided the destiny of the railway world. Ten miles an hour was the greatest speed then conceivable. The "Rocket" ran twenty-nine miles. The famous engine is now to be seen standing—a noble trophy—at the Darlington Station. No one had then any idea that passengers could be carried by steam, and when the attempt was made, old mail-coach bodies were brought and stuck upon trucks, and some of them still run on the Darlington line. The idea of building such carriages as we now see had entered no man's mind.

When Fanny Henderson—whose shoes had been so lovingly soled—died, one child survived, named Robert Stephenson, who also became a great and prosperous engineer. The father laboured in his struggling years to give him a good education. In all relations of life George Stephenson was exemplary; and when fame and fortune were his, and, towards the close of his life, he used to speak to members of mechanics' institutions, he always used to say, "I owe everything to *perseverance*." It was a favourite word of his. And "when," as one of the reviewers of his life, once said, "perseverance gets into a Northumbrian brain, it will do a great deal." It will in any brain, if united to George Stephenson's industry, self-denial, watchfulness, thoughtfulness, good temper, good sense, and experimental turn of mind.

Inauguration of the "Working Man."

A soirée on rather a large scale was given by Messrs. Cassell, Petter, and Galpin, the publishers, in the large room of their establishment in La Belle Sauvage Yard, Ludgate Hill, on Saturday evening, January 6th, to their *employés*, for the purpose of inaugurating the publication of the WORKING MAN. The company consisted of upwards of 300 persons of both sexes, including a few invited guests, who were more or less interested in the firm. The room was handsomely decorated with flags and evergreens; the London Stereoscopic Company lent some beautiful water-colour drawings, photographs, and stereoscopes; Mr. Rimmel, the well-known perfumer, contributed scented fountains and evaporisers, and perfumed bouquets; and Mr. Benson, the jeweller, of Ludgate Hill, kindly furnished a number of beautiful statuettes and other works of art, candelabra, and the elegant tea-urns which adorned the tables.

A liberal tea having been enjoyed, ALDERMAN LUSK, who presided, made a very appropriate and genial speech, and after some jocular observations, said—"Ladies and gentlemen, workmen, wives, sweethearts, and friends, I wish you all a happy new year. (Applause.) The new year has always certain associations about it. We have all had our troubles. The nation has had its troubles too: it has lost Lord Palmerston, Richard Cobden, and other great men. We all have lost friends, and we have all had our anxieties; still, we have had many successes and many comforts, and therefore we ought to look forward with hope to another new year. We are delighted to say, 'A Happy New Year.' We have some gleams of sunshine, and everything looks beautiful: there is some dulness, but still, upon the whole, I think we all agree that we ought to be thankful that the nation is prosperous and progressing. We are always improving—progress goes on, and now and again (I tell you this as a fact communicated by Macaulay) 'a single wave may recede, still the tide of progress is rolling on.' (Cheers.) It is not long since working men first assumed that respectable position they now occupy in this country; nor had we workmen to occupy the large place they now do in influencing the future destinies of this nation. They occupied a very different position fifty years ago. May they go on and prosper. (Cheers.) I might mention, as a pertinent instance, the efforts of our esteemed friends, Messrs. Cassell, Petter, and Galpin, in bringing out a new publication called the WORKING MAN. (Loud and prolonged cheers.) On this very day, the 6th January, 1866, that new organ has seen the light, and we have met here this evening to say, 'Welcome, *little* stranger.' (Laughter.) Not such a *little* stranger, either—fine boy, wonderfully like its parent; sharp, clear eye, can see things all around, a powerful arm to help a neighbour, and a strong limb, that I have no doubt can kick when occasion requires. I am sure that you will be all glad with me to wish success to that publication. (Applause.) We have met here this evening to inaugurate that publication, and I hope it will be successful. I tell you there is great room for a paper that will advocate the interests of the working man. Never forget that we have about 1,000,000 of paupers and upwards of 3,000,000 of men not far above them. We have in London alone 7,000 policemen to keep down drunkards. It costs us nearly £1,500,000 per annum for the expense of these men. Altogether, for this purpose, £3,500,000 are expended annually throughout the country. The object of this publication is to advocate such principles as will ultimately lead to the maintenance of public order without such expenditure. I am glad that I am able to say that, owing to the enterprising spirit of Messrs. Cassell, Petter, and Galpin, we have a paper, well printed, well conducted, and in every respect calculated faithfully to represent the interests of the working classes. I am glad to see a new labourer coming into the field to assist in the cause of reform. I hope it will be successful, and that everything will be consistent with the best interests of the working classes. I hope it will progress. I hope that the working classes will support it, and I hope it will be a leader and a guide to those who look at its columns. I hope that it will be conducted in a fair and proper spirit (indeed, I am sure it will, from the high character of its literary staff, and the well-known reputation of its publishers), and that it will encourage the timid and feeble, and teach ignorance to see and grief to smile."

The song written for the occasion by Mr. Plummer, "The Working Man," which appears in another column, was then sung by Mr. D. Cox.

Mr. GALPIN then rose, and was received with enthusiastic applause. He said—"Mr. Chairman, ladies and gentlemen, and working men, the warmth of your reception has added another difficulty to that which I felt in responding to the call made upon me. I certainly feel some difficulty in doing justice to the subject on which I am called upon to speak. Before I proceed further, I must claim your indulgence in adverting briefly to another subject. You all know that my worthy partner, Mr. Petter, is absent through illness, and that he would be happy to be present tonight to give expression to the feelings which animate us—the pride we all must feel in being assembled on such an occasion. (Hear, hear.) Permit me to tender especially on his behalf, and on my own, to the ladies and gentlemen who have honoured us with their presence, our hearty thanks. (Applause.) My name has been put down to speak to the toast of the WORKING MAN; but I must say a few words as to the character of the relations between the employers and the employed. It is now about sixteen years since we have been associated together, and I am happy to see around me so many faces which have been familiar to me during that period—most of you for the greater part, and some for the whole of that time. During that period my great sorrow has been that our gatherings have not been so full as at present. Formerly, the men only attended; but you know how I have 'hammered' away to get the sweethearts and wives to attend on those festive occasions. (Cheers.) Now, this is the first time I have had the gratification of saying, in addressing my co-workers, '*ladies and* gentlemen.' Now, ladies, I must say (and I say it with all deference) that we have had pleasant hours without you (laughter), but not so pleasant as I am sure they will be with you this evening. I hope I may be excused for touching on another subject in connection with the history of this firm. Our chairman has reminded us of the losses which the country has sustained during the last year, and I need hardly refer to the very great loss we have sustained by the death of Mr. Cassell (hear, hear), himself a working man. I do feel strongly and deeply when I think of the vacant space which he would so ably fill on an occasion like the present. Most of you know how heartily he always entered into the spirit which animated our meetings. Excuse me if I feel strongly in this passing tribute to a dear departed friend. (Applause.) Now what are the objects of the WORKING MAN? I may sum them up in a very few sentences. One of them is to promote such happy meetings as the present. We have worked long enough together for you to know and appreciate the kindly feelings which exist between us as employers and employed, and that those relations have been of a very happy character. (Hear.) I hope that good feeling will be promoted by such meetings, and that the WORKING MAN will promote unity and strength of purpose among the working men themselves. Every working man has within himself the elements of power. He has skill, which is his capital; and if working men will only unite their varied powers, they can bear down everything opposed to their real interests. (Cheers.) If the working bees unite, they will soon drive out the drones, who misappropriate the results of honest industry. When I speak of working men, I do not mean those only who work with their hands. I believe I may class myself as a working man, and I hope you will regard me as such. We are all working men, and, as such, we ought to struggle together to accomplish the grand objects of this paper—namely, to promote peace and goodwill among mankind. (Cheers.) This may be done in many different ways. However, I must not dilate upon this subject, as there are many other gentlemen who will have to address you, likely to touch upon this topic. I must congratulate you on the proud position which the working man is sure to achieve for himself, and the aid which the WORKING MAN will render him in accomplishing that desirable object. I hope the time is not far distant when the clouds of ignorance shall be dispersed, and the light of Christianity shall illuminate and bless the whole of our beloved country. In conclusion, I thank you for the honour you have done me on this happy occasion." (Applause.)

The addresses—each speaker being limited to ten minutes—were then commenced by Mr. SHORTER, Secretary of the Working Men's College, on the subject of "Working Men's Colleges."

The Rev. R. MAGUIRE, M.A., addressed the meeting on the subject of "Social Elevation." Instruction signified the laying up stores in the mind, while education was the drawing out and manipulating those stores, so as to feed the hungry mind, and those who so use those stores are the real educators of the people. (Cheers.) You could educate a tree so as to promote its growth and beauty; and so can man be trained and formed, so that all the elements of goodness and power in him may be duly developed. (Hear, hear.) In his college days he had known several young men who were deeper readers than himself, who used to lay in great stores of knowledge, but who failed for want of the faculty of reproducing them, and turning them to profitable account. Every one who read should be like a star in the firmament, receiving light, and then giving it back. In the one case he would be the "instructor," in the other the "educator." In the first instance he would deposit the seed, in the next he would bring forth the fruit; the one is the capital, the other the dividend; the one is the food of the mind, the other the digestion. (Cheers.) Aim at truth! That, after all, was the golden nugget,

and the man who discovered it received it in trust for his fellow-men.

Mr. MURPHY made some eloquent and able remarks on the subject of the "Homes of the People."

The Rev. DAWSON BURNS spoke energetically on the subject of "Self-help." Abraham Lincoln was a great self-helper; so was Mr. Gladstone, though with much greater advantages. They ought all to help themselves, remembering that self-help included self-reliance and self-restraint, and imposed the duty of helping others. The late Mr. Cassell was an eminent example of a man who, having risen by self-help, was always ready to extend a helping hand to others.

The Rev. H. SOLLY, on the subject of "Clubs and Institutes," dwelt upon the reason why working men should enjoy the advantages of clubs as well as those who ranked higher in social position.

Mr. GEORGE WALLIS was then called upon to speak on "Art and Handicraft." Workmen, while recognising use as the fundamental idea of the production, should strive to cultivate a sense of beauty, so that they might adorn the work they made: thus imitating Nature, in which beauty is an essential element. As an artist himself, he knew the pleasure which attended a reverent study of the beauty of Nature, and workmen would feel that too, if they opened their minds to its influences.

The Rev. T. TEIGNMOUTH SHORE, M.A., was loudly cheered when he presented himself. His subject, he said, was "Popular Literature;" but, as time was short, he would confine himself in his remarks to the periodical whose birth they were commemorating. It would advocate every principle which could benefit and elevate the working man, and make him fitter to appreciate the blessings of his position as a member of a free community, living under the noblest constitution in the world.

Mr. JEFFERY moved a vote of thanks to the Chairman, who genially responded.

Between each address there were songs, glees, and quartettes, admirably sung by Miss Ellen Lyon, Miss Pettet, Mr. Theodore Distin, and Mr. D. Cox.

On quitting the room, Mr. and Mrs. Galpin were loudly cheered; and the company broke up highly delighted with the proceedings of the evening.

PARISIAN TOYS FOR THE NEW YEAR.

A LIVELY correspondent of the *Times* writes from Paris:—If we may judge by the increasing extravagance in the manufacture and decoration of the trinkets and toys which this year encumber the shop windows in the fashionable quarters of Paris, it is evident that the heroic burlesque of the New Year's Day comedy is not near its end. A young lady or gentleman of seven will look with supreme scorn at any toy that costs less than 150f., and I have heard of instances where this was sent back to the giver with ironical thanks. There are effigies of Punch that cost 1,000f., and dolls from 3f. to 4,000f. For the last fortnight you might see crowds stationed before the windows of a well-known confectioner in the Rue de la Paix, admiring the *bonbonnières*—for it is the box or the *sac*, and not its contents, that is so highly prized—of the latest fashion. This specimen of Parisian ingenuity, this *sac aux bonbons*, is represented by two ladies, one of the First Empire, the other of the Second—the one of 1806 in grand costume, glittering in gold and precious stones, and with a train of crimson velvet, which she holds up with one hand; and the one of 1866 in a dress of green velvet, embroidered with escutcheons, and covered over with garlands of flowers. The deficiency in the "body" of the dress is great, but is more than compensated by the vast amplitude of the lower part; and it may be said that never was court train or crinoline turned to better account, for it is in them that the bonbons are contained. These Imperial dolls cost 25,000f. apiece! There are others a little cheaper, intended as portraits of the principal actresses of the minor theatres.

Side by side with these gorgeous toys, on which so much art and industry are expended, you have the old booths on the Boulevards, from the Madeleine to the Bastille, which are authorised to be kept open for a period not exceeding fifteen days. They are mostly put together with rough planks, are got up during the night in a few hours, and serve as bazaars for toys, many of which are within the reach of the poorer classes. The number of these temporary structures, which present so striking a contrast to the rich shops in front, seems to diminish a little. Last year there were about 2,300; the present counts some hundreds less. The traders of this cheap fancy fair consist of petty manufacturers working at home, who profit by this occasion to exhibit and sell their products; small shopkeepers in the remoter quarters, who manage in this way to get rid of their superfluous stock; and artisans out of work for the moment, who have invested their savings in that speculation. Cheap *articles de Paris*, German toys for children, oranges and sugar-plums, form the staple merchandise, though you see here and there articles of cabinet-work, not certainly the pick and choice of the Rue St. Antoine, but still bearing marks of the taste which the French mechanic impresses on all his produce. When the weather holds up, trade is brisk, for the Boulevards are thronged, and few pass without a halt at the *baraques*.

Position of Co-operation.

VERY many intelligent working men do not understand Co-operation. Like Life Insurance—a much older, and far more popular thing, which has never received the thoughtful attention of perhaps not a third of the working classes—Co-operation is as yet comparatively unknown. Even quarterly reviewers, with great pretensions to wisdom, and with the best opportunities of acquiring information, publish the oddest judgments of it. Thoughtful writers in less notable quarters, editors of great trade organs, and respectable merchants, the very greybeards of commerce, are continually publishing pamphlets on "Rochdale Fallacies," and so forth. No wonder, then, that working men should be what Mr. Roebuck said once in the House of Commons that the late Sir George Cornewall Lewis was not—"obfuscated" as to Co-operation. No wonder if many who think there is something in it, do not know what that something is, and others suspect it altogether.

Co-operation is one of the new social forces of the age. It is without doubt a new power of industry. It enables a man to save money without working for it—to grow rich, or, at least, attain to competence, without using any portion of his wages. This is a secret worth mastering; and, strange to say, although the secret has been published pretty extensively, a very small number of towns are in possession of it. The number of great Co-operative Societies is very few. The number of important towns without any society at all is considerable. Few social facts are more curious than to contemplate the towns where Co-operation succeeds, and where it fails or languishes. Towns sharp as Sheffield, robust as Birmingham, critical as Glasgow, ambitious as Edinburgh, instructed as London, find the problem too much for them, while in a hundred likely towns and cities it has not even been attempted. Yet, in third-rate, improbable places, triumphs have been achieved which have altered the character, changed for the better the fortunes of the whole population, and raised the character of England for industrial tact and social wit beyond any nation of the earth.

This is no extravagant thing to say, though it sounds like it. It is an unexaggerated statement of facts. Statesmen, political economists, statisticians, and other inquirers of eminence, anxious to assure themselves of the reality of the new phenomenon entitled Co-operation, have paid visits to the town of which the late Mr. Cobden was the representative. Nor has the curiosity been confined to our own country. Professors from Germany, political economists from Paris, even from Russia, from America, and from India, students of social science, have come, attracted by the fame of Lancashire Co-operators. There must be something in a new scheme of industrial action whose fame is bruited so far. For a time it was admitted that this new discovery, or resuscitation, to speak historically, "might answer for a time, as all new things, which attain popularity, do; but it had yet to be tried. The day of trade adversity would come, and then the world would see how it would stand the trial." The evil days did come. For four years the industry of the great manufacturing centre of England was paralysed, when, to the gratification of its friends, and surprise of the public, Co-operation in its double form—as applied to provision-store keeping and to manufactures—not only withstood the storm, but struck its roots deeper in the ground than ever. This new power is, therefore, an "established fact," and entitled to be dealt with accordingly. As yet it is in its infancy. Its uses are unknown in their totality. Its new applications are, to use a phrase Mr. Dickens does not like, "cropping up" in places unexpectedly, we might almost say daily. And yet organised bodies of workmen, as trades unionists, have not commenced to use it; although their combination is ostensibly intended to secure the prosperity and independence of their order. The applications the wealthy may make of Co-operation is greater far than the industrious classes have yet been able to accomplish.

Eight years have elapsed since the history of the Rochdale store was closed. Since that date remarkable historic progress has been made. Also there has arisen, with a suddenness as remarkable as the growth of the iron city of the north—Middlesborough-on-Tees—the great Industrial Society of Halifax, whose history is as full of interest as it is replete with instruction.

The journalism of Co-operation has been very earnest, but it has not been of an exhaustive character. The department of suggestion has been little cultivated, and scope has been left wide enough for very different—certainly, additional and, we hope, useful treatment.

Co-operation is a scheme in which all who join in the work share the profits. Its object is to enable, as far as possible, all who contribute by labour or skill—by judgment or ingenuity—to a successful working scheme, to become common participators of the common profits. The simplest form in which this principle is applied, is that in which a number of people of small means join together to open and conduct a Provision Store. This form of Co-operation was first adopted, because a small capital will yield an immediate return; and since all the members are eaters, and the poorest commonly the greatest, every member can become a dealer at the store, and help to increase the general profits. Indeed, a man with a large family is a more valuable member of a Co-operative Society of this kind than a man with a small one, since he must purchase more provisions; and the more he purchases the more profit he makes to the society. At first, a very cheap room is rented for the store. The members buy such articles as they think they can sell, and commonly buy them badly. They do not know genuine articles when they see them, and seldom know where to find them, if they did. They are necessarily shut out from the best markets, not having sufficient money to purchase in them. Inexperienced as shopmen, they do not know the best methods of preserving goods for which they have not an immediate sale. At first goods are sold only at nights, when the workmen come from the mill who act as shopmen without payment. After a time, when these night shops begin to afford a small profit, the members increase, and a day shop is opened for the convenience of families. Instead of workmen taking home the provisions at night, their wives come and buy them in the daytime. Curious steps are often taken, and curious disasters often occur, before an encouraging rate of profit is reached.

When this desirable, though often long deferred period arrives, the attention of the members is turned to the minor departments of manufacturing. A small capital is subscribed to furnish a shoemaker's shop with a slender supply of leather and lasts; and then the hammer of the busy cobbler, or cordwainer, as he now delights to call himself, is soon heard rattling on the soles of Co-operative shoes. The next step is to fit up a shop for that universal and indispensable artificer—the tailor. Another subscription of capital is made to purchase cloth and needles; and shears are soon heard clinking in arriving at the varying shapes of the sturdy Co-operatives. In mill districts clogging is a popular department of primitive manufacture. In more agricultural districts an oven is put up, and baking has an early turn. The profits, after all expenses are paid, are divided quarterly and equitably among all the members, in proportion to their purchases. Here comes the turning-point of the fortunes of the store. If the members have confidence and good sense, and leave their profits in the hands of the store, to accumulate as capital for the extension of the store, it is sure to thrive, and the members make surprising gains. But if they withdraw their profits as soon as made, the members learn no thrift—accumulate no savings—the store makes no way, the goods become worse, the members acquire no enthusiasm, the store languishes, and commonly comes to grief. The Rochdale store, when it began in 1844, took only a few pounds a week over the counter; now, they take nearly £120,000 a year. There are stores in existence, much older than Rochdale, that scarcely take a thousand pounds a year now. The secret of success consists in the members saving their savings, instead of spending them.

The second form of Co-operation is that in which the principle is applied on a large scale to manufactures, to buying or building spinning mills, and stocking them with machinery. The capital required for this varies from £5,000 to £30,000. The principle of Co-operation, as applied here, involves a much higher degree of good sense, good feeling, and judgment. It consists in extending to every workman, as well as to every shareholder, an equitable participation in the common profits, produced by the common skill, industry, and carefulness. This problem has not yet been worked out. There is scarcely half-a-

dozen factories founded on this principle. There are large numbers bearing the distinctive and honourable name of "Co-operative" concerns, which have no right whatever to the title, and in all correct classification of them are excluded from the list. They are mere joint-stock associations—a bastard form of Co-operation, in which the workman is left out of consideration altogether.

In Germany Co-operation assumes a form it has never attained in England, fulfilling the function of a sort of universal loan society for the assistance of industry. In America Co-operation has been made susceptible of far larger views than in Europe. In England it has looked no farther, excepting in the minds of early Rochdale Co-operatives, than to making new profits. In America it gives signs of consulting the dignity of labour. The Co-operative principle is no doubt capable of effecting that "organisation of labour" that was heralded some years ago with great eloquence by a French historian, the realisation of which has, until lately, remained in the region of prophecy. The means of realising it were never apparent until the latest stages of Co-operation were reached in Rochdale and Halifax. In Rochdale the members of the Co-operative Society exceed 5,000. In Halifax they equal the same number. In Rochdale the Co-operatives are masters of the social situation. The working class are their own merchants, their own builders, their own bankers, and will soon be their own employers. When they hold a members' meeting it assumes the proportion of a town's meeting. The largest hall in the place will not hold the half of them. In Halifax, when the members hold a tea-party, they are obliged to engage the two largest public halls—the Odd Fellows' and the Mechanics' Institution—and then they are not able to accommodate two-thirds of their members. It is thought a great thing when a wealthy manufacturer builds a church or presents a park to his neighbours. The collective Rochdale Co-operatives could afford to build a new church every quarter out of their profits; and the Co-operatives of Halifax might present a park to the town every half year. During the cotton panic time the Rochdale Societies subscribed more than many large firms for the relief of the distressed. Before the days of Co-operation, workmen were ever the distressed, now they take their place in the influential ranks of those who relieve public distress. Certainly the principle of Co-operation is entitled to exposition.

Things Talked About.

ACTIVE measures for providing homes for the thousands upon thousands of working people who are threatened with eviction, to make way for metropolitan improvements, and new railway extensions and stations, cannot longer be postponed. Something, of course, must be left to private enterprise, which is generally tolerably active when a profit on outlay seems probable; but a greater power than that must be brought into action. We are glad to see that the guardians of the Strand Union—one of the districts especially affected, for there the new Courts of Law will be erected—are setting to work seriously, and calling upon other parishes to help them to secure legislative consideration of the subject, as a preliminary to the discussion of the merits of the numerous railway bills of which notice has been given. The resolutions agreed to are given in another column.

What an appalling letter is that of Dr. Jeaffreson's to the *Times*, on the subject of fever manufactories in London! He has been investigating the sanitary condition of Lambeth, Southwark, Bermondsey, Bethnal Green, St. Luke's, St. Giles's, and other unsavoury localities. He found sewerage and water supply scandalously deficient, wet walls, foundations of small houses sodden with filth, whole families crowded into little rooms; overcrowding and filth everywhere, cleanliness and decency at a sad discount. And all that in the greatest and wealthiest city of the world! The owners of such wretched, but, it would seem, profitable house-property, are predominant in the vestries, and what can health officers do?

Mr. Buckmaster, who has had as much experience of the working of Mechanics' Institutions as most people, has made an assertion which will startle many who look upon such institutions as a great means of mental improvement. He said at Newport, a day or two since, that "as institutions are at present conducted, it may safely be asserted they do more harm than good." Solid instruction in art, literature, and science, he says, is neglected, and the lectures are monopolised by "small jokers, washy sentimentalists, and vocal punsters." So-called musical lectures he especially denounces, and says their efforts would scarcely be tolerated in a respectable tavern. Committee-men and secretaries will do well to think of these matters.

If, however, institutions which were established to aid youth and adults in the great work of self-education, have really fallen from their high estate, it is gratifying to know that Londoners, at least, will soon enjoy the advantages of middle-class schools, where the children of working men may receive as good an education as that given at some first-class public schools. The plan suggested by the Rev. W. Rogers, of Bishopsgate, has been so warmly taken up, that the sum of £50,000 originally fixed upon as necessary for the establishment of such a school, will probably be doubled. Twenty-eight persons, or firms, have already given £1,000 each to the fund.

Another movement in the City is spoken of—nothing less than the establishment of a great Free Library. London should not be behind Liverpool.

The records of the Victoria Cross, or the French Legion of Honour, scarcely describe a more daring or heroic act than that performed last week by a working man, a fireman employed on the North Eastern Railway. An engine was started by accident from the Durham station, and dashed along at the rate of sixty miles an hour, with nobody to control its movements. When it passed Washington station, a driver named Gilchrist, and his fireman, Batey, detached their engine from a train, and started in pursuit on the parallel line of rails. The race lasted for nearly ten miles, and the runaway was not overtaken till it was within half a mile of Gateshead; then Batey, the fireman, leaped from his own engine, secured his hold of the other, and putting the brake on, stopped it. It was a gallant deed, and perhaps saved scores of lives.

The Post-Office Savings Banks are a great success; but they have not absorbed all the savings of provident working men, as may be seen by the report of the Finsbury and City of London Savings Bank, which shows that, during the past year, there has been an increase of over 500 depositors, and of £14,000 in the value of deposits. This looks well for the prosperity of industrious and thrifty working men.

If any of our readers meditate emigration—though we think that what we have just said shows that a good living, and something more, is to be obtained at home—we would advise them not to turn their attention to British Columbia or Vancouver's Island—at least, not for some time to come. Perhaps the gold fever will wear itself out, and then the natural riches of the country may be turned to better use. A letter in the *Toronto Gazette* describes the country in the most glowing terms. As a pastoral district, British Columbia surpasses every other province of British North America. The fisheries and timber trade are apparently illimitable, or the extent to which they might be developed. But—there is generally a but somewhere—there are distress and starvation prices for everything; money, notwithstanding the gold found, is so short that twenty and twenty-five per cent. is charged by the banks for a month's accommodation, and business is, of course, crippled. A stronger proof that real wealth is something more than solid metal could scarcely be given.

We have not come to eat horseflesh yet, and are not anxious to emulate our neighbours across the Channel in that respect. There it is in favour, and a regular horse-butcher is now established and duly licensed for the supply of meat for family use.

The establishment of village hospitals is a welcome fact. One of these at Cranley, in Surrey, has been fairly in operation for six years, and serves as a model for several others now being started. The Marchioness of Aylesbury is establishing hospitals of the kind on her Wiltshire estates. A roomy farm-house, or similar building, is taken, properly furnished with beds, a good surgeon and experienced nurses are engaged, and there at once is a place whither the sick labourer and his family, or the unfortunate victim of an accident, may be taken, properly attended to, and enjoy comforts, cleanliness, and skill, which he might else wish for in vain.

The Kidderminster carpet weavers have struck, in opposition to the desire of the masters to introduce more apprentices into the trade, but have, after some discussion, consented to a compromise, which limits the number of the youths so employed. A sad loss to the men might otherwise have been the result of the strike. A similar effort was made some seventeen or eighteen years since by compositors, and failed. To endeavour to maintain a monopoly by restriction of the number of labourers, old or young, is one of the weakest of delusions. Lads must work, and have a right to work, and it is the interest of all fathers that the rights of their sons, as well as their own, should be looked to; but it cannot be supposed that masters will teach them their business without requiring some remuneration, in the shape of a share of the wages earned by the apprentices. There have been some unpleasant altercations on this subject in Sheffield. The apprentice laws need revision, we know, but that is another question altogether.

The Bristol dock-porters have struck for higher wages. They seem to have forgotten that mere labour without skill is always abundant; and the fact that their places are being rapidly supplied by strong young fellows, well fitted for the laborious work, will, we trust, prove a warning for the future. We are glad, by the way, to hear that the strike of the South Yorkshire colliers is at an end.

Several Burial Clubs have just "come to grief," as sporting men say, and been declared bankrupt. One of the best services intelligent working men can do their worse-informed companions is to warn them against subscribing to societies which are so rotten in basis as many of those in which the hard-earned savings of poor people are so often invested and lost. On this subject we shall endeavour to supply our readers with sound information. A London clergyman has made known a case which occurred in his district. A family of seven were literally starving in one little room, without a bed to lie upon; their furniture had been seized for rent, which they had failed to pay, having exhausted their means in providing a funeral for the old grandmother, who had subscribed to three burial clubs, in order that, at her death, she should be no burden to her surviving relatives. All the clubs had ended in bankruptcy!

General Information.

CLUBS.

ST. JAMES'S AND SOHO.—This club inaugurated its entrance into new and commodious premises in Rose Street, Soho, on Monday evening, by a public meeting, held in the hall of the club, under the presidency of Henry Hoare, Esq., Jun., who is its treasurer. The meeting was only moderately attended; but those who came were men of the right sort, and a considerable number of the new comers joined the club at the close of the meeting. The speakers, besides the chairman, were Hodgson Pratt, Esq., Chairman of the Executive Committee of the Working Men's Club and Institute Union, the Rev. H. Solly, Mr. Matthews, president of the club, Mr. Turley and other working men. A hearty tone of earnestness and hopefulness seemed to pervade both the meeting and the speeches. This club was originally established at a public meeting, held in St. Luke's School-rooms, Soho, presided over by Sir John V. Shelley, M.P., and has received much kind support from the Incumbent of St. Luke's—the Rev. Harry Jones; but it has strikingly illustrated the enormous difficulties working men have to contend against, in procuring premises for club purposes. By the kind liberality, however, of Mr. Henry Hoare, Jun., who has guaranteed the rent of the new premises, aided by the valuable co-operation of the Rev. Harry Jones and the Rev. H. Solly, and the exertions of a few working men, who have stuck to the club indomitably through all its adverse fortunes, it appears to be now placed on a sound and permanent basis. If the working men generally of the neighbourhood will now come forward, and show their appreciation of the efforts made for their enjoyment and benefit, this club may become one of the best and most useful in the metropolis. The Hon. Sir Frederick Grey, who was chairman of a club that recently existed in St. Martin's parish, visited the club in Rose Street last week, in company with Mr. Hoare, and announced his intention of lending the furniture of the late St. Martin's Club to the committee, also expressing his best wishes for its success.

EXHIBITIONS.

THE LATE WEST LONDON EXHIBITION.—It is stated that two of the guarantors of the West London Exhibition—Messrs. Harris Heal, of Tottenham Court Road, and J. Hansler, of Lincoln's Inn—have examined and certified to the accuracy of the accounts, and have authorised the guarantors being called upon to the full amount of the money for which they guaranteed. The debts resulting from the exhibition amount to about £1,300, and the sum guaranteed between £1,300 and £1,400. The committee, it is stated, will lose no time in collecting the money and meeting all demands.

CITY OF LONDON WORKING CLASSES' INDUSTRIAL EXHIBITION.—A meeting of the patrons, guarantors, and general and executive committees, was recently convened by private circular at the London Coffee House, for the purpose of appointing a space and decoration committee. The honorary secretary (William Ramsey, Esq.) read a report, drawn by the secretary (Mr. J. R. Whorlow), which set forth the origin and progress of the exhibition up to the present time, and stated that the Corporation had granted the use of the Guildhall in which to hold the exhibition, in March, 1866; and that the surplus funds (if any) would be devoted to the foundation of a free public library for the City of London. This announcement gave the greatest pleasure to all present, and the chairman liberally offered to convert the amount of £25 guaranteed by him into a donation in aid of such a laudable object. Several gentlemen spoke in terms of praise as to what had been done, and as to the future prospects of the undertaking. Mr. J. T. Bedford said he was prepared at the proper time, and with the authority of the committee, to make an application to the Court of Common Council for £500, for the purposes of the exhibition.

SOUTH-EASTERN INDUSTRIAL EXHIBITION.—The closing ceremony of this exhibition is announced to take place at the Painted Hall of the Royal Hospital, Greenwich, on the afternoon of Saturday, the 27th inst., when the prizes and certificates will be awarded to the successful exhibitors by Viscount Sydney, Lord Lieutenant of Kent. The exhibition, which was opened in October last, has proved entirely successful, and will be closed to visitors this day, Saturday, the 13th inst.

LEGAL DECISIONS.

A TRADES ASSOCIATION.—The Liverpool Shipwrights' Association has been summoned by two of its members, to enforce a restoration of privileges, of which the plaintiffs had been deprived. Because the complainants had worked lump jobs, they had been expelled from the association, the object being to compel shipowners and masters to employ extra hands for all extra work required to be done. The magistrates ordered the complainants to be restored to full privileges, including sick and annuity allowances. Mr. Bremner, who appeared for the association, said that the men had not been legally expelled, as the resolutions referring to them had been passed under a misapprehension.

WAGES.

WAGES IN NEW ZEALAND.—Good general servants rate from £30 to £35, £40 being the very highest wages given in private families. Housemaids, £30; nursemaids, £20 to £26; women cooks in hotels, £1 per week to £2 10s.; men cooks, ditto, from 50s. to £3 10s.; housemaids for hotels, 15s. to £1 per week; kitchenmaids, £1 per week; scullerymaids, £30; barmaids in Dunedin, £2 per week; ditto, up country, £2 to £3 per week; ditto to west coast, from 50s. to £4 per week. Male servants—Grooms, £2 per week; married couples, from £75 to £100 per annum; coachmen, £2 per week; gardeners, £1 to 50s. per week; shepherds, from £50 to £70 per annum; bullock drivers, 50s. per week; shearers, 25s. per hundred and rations; milkmen, 30s. per week; boys, from 10s. to £1 per week. Governesses, from £50 to £100 per annum; dressmakers, 4s. per day, or £1 per week; machinists, from £1 to 30s. per week; milliners, from 30s. to 60s. per week.—*Otago Daily Times.*

WAGES IN THE AGRICULTURAL DISTRICTS.—A Wiltshire correspondent maintains that the Dorsetshire labourers, on whose behalf so much sympathy has been called forth, are not worse off than their brethren in Wiltshire. In the latter county—at least, in some districts of it—the custom is to pay the labourers their wages monthly. Like the Dorsetshire labourer, their usual pay is 8s. per week; and as this comes to them after a month's labour, and in some classes even longer, the money is forestalled, and goes to pay off a constantly recurring debt at the village shop. The shopkeeper, being thus obliged to give credit, naturally indemnifies himself against prospective losses by charging an extra profit; and thus the poor customer, in addition to the misery of being always in debt, has to pay an extra tax on his monthly receipts. But even this is not the whole of the Wiltshire labourer's sorrow. "I was calling the other day," says the writer, "on two of my poor neighbours, both family men, and one of them with a large young family, when I was told that out of the weekly wages of 8s. they both had to endure stoppages for wet days, when they were not allowed to work."

THE RATE OF WAGES AT THE NAVAL DOCKYARDS.—On the occasion of the Duke of Somerset and the other members of the Board of Admiralty paying their official annual visit to Chatham Dockyard, some time back, they had interviews with several deputations from the workmen at that establishment, who pointed out the alleged grievances under which they labour. The chief complaint is the inadequate rate of pay they receive as compared with that given by the leading private shipbuilding firms. Their lordships on that occasion, after hearing the statements of the members composing the several deputations, promised that the subject-matters brought before them should receive attention, with the object of any real grievances being redressed. An Admiralty circular has accordingly been received at Chatham Dockyard. It announces that, after carefully and anxiously considering the subject of a proposed increase of wages to the workmen generally, and having had the opportunity of hearing the frank and respectful statements of the deputations from the various classes of workmen at the recent annual visitation of the dockyard, and at the same time comparing the rates of payments for labour in the Royal dockyards with those of private establishments, the Board cannot recommend Parliament to grant any increase of wages to the workmen. A similar order has, it is understood, been forwarded to all the other naval establishments.

A MEETING of the carpet manufacturers of Scotland was recently held in the Cobden Hotel, Glasgow, to consider the propriety of giving a rise of wages to their workers. Mr. Hugh Wilson, Jun., was called to the chair, when there was read a petition from the Carpet Weavers' Association of Scotland, asking ¼d. per yard of advance on the present prices paid for weaving fine carpets. Mr. George M'Laren moved that the advance asked be given, the same to take effect on and after the 1st of March, 1866. Mr. Murdoch seconded the motion, which was unanimously agreed to. This branch of Scottish industry is in a much healthier condition just now than it has been for a long time previous, owing, we believe, to the cessation of the American war; the carpet manufacturers have now good prospects before them, and several large orders on hand for America.

WORKING MEN'S DWELLINGS.

BURNTISLAND, N.B.—At a meeting held in the Town Hall, Burntisland, N.B., last week, the Provost in the chair, it was resolved to form a building society at once, with a view to procure additional dwelling-houses for the working classes.

RAILWAY EXTENSION AND LABOURERS' DWELLINGS.—The intended terminal station of the Midland Railway Company, between St. Pancras Road and Skinner Street, and abutting on the Euston Road, to the eastward of King's Cross Railway Station, will involve the removal of the houses on the north side of Euston road between Skinner Street and the Great Northern Railway Station (including St. Luke's Church); the houses on the west side of St. Pancras Road from Weston Street to Brewer Street, and from Brewer Street to Welford Street, the whole of Brewer Street, part of Brill Row and Brill Mews, the whole of Perry Street, Smith Street, Weston Street, Hertford Street, and the several alleys, yards, and courts within that area. The number of inhabitants, who are principally of the poorer classes, that will be thus displaced will exceed 20,000 persons. Such will be the effect of the erection of only one of the many great railway works now being constructed or in contemplation in the metropolis, on the already limited accommodation for the working classes.

DWELLINGS FOR THE POOR.—The following is a copy of a resolution moved by Mr. Storr, seconded by Mr. Hedgcock, and carried, at a recent meeting of the Strand Union Board of Guardians:—"That a committee be appointed to inquire into and report to this board upon the existing house and lodging accommodation for the labouring and poorer classes within the Strand Union District, and the extent to which the immediate demolition of small house property for the new law courts in St. Clement Danes, for the railway about to be constructed from Charing Cross to the Hampstead Road, and for other contemplated improvements, will deprive the said labouring and poorer classes of their present inadequate and yet highly rented lodgings. After taking all necessary evidence, the committee to consider and report to the board their views as to the expediency of this board communicating with other boards of guardians of the poor of the various metropolitan unions or parishes, memorialising the President of the Poor-law Board, the Home Secretary of State, the Lord Mayor, the Chairman of the Metropolitan Board of Works, and the several Metropolitan members of the House of Commons, with a view to this urgent public question being at once brought under the notice of the proper authorities by the guardians of the poor, in order that the Government may have time carefully to consider in what way suitable provision should be made for dwellings for the poor, before the parliamentary committees sit upon the very many bills for divers new metropolitan railways and other schemes that will be laid before them during the coming session." Leave was given by the board to the committee to communicate with the boards of guardians of the various metropolitan unions or parishes, with a view to ascertain if they were willing to co-operate in this matter.

NEW PARK.—Finsbury Park, for the formation of which 120 acres were purchased by the Metropolitan Board of Works, situate on the north side of the Seven Sisters' Road, and extending from the Great Northern Railway on the west to the Green Lanes on the east, is to be proceeded with, the difficulties raised by the Edgware, Highgate, and London Railway Company having been removed.

APPOINTMENTS OPEN.

CEYLON CIVIL SERVICE.—Six superior clerks of works are required, for the Public Works Department of the Government of Ceylon. They must be good draughtsmen and thoroughly experienced practical men, able to plan, estimate, and lay out works. Salary to commence at £400 per annum. The persons selected will be entitled to free passages for themselves and families from this country to Ceylon, and will come within the scope of the regulations respecting leave of absence, and of pensions on retirement. Applications, by letter only, stating age, past experience, and present employment, accompanied by testimonials, will be received by the undersigned until the 15th inst., inclusive. As testimonials will not be returned, applicants are particularly requested, in the first instance, to send copies only.—PENROSE G. JULYAN, W. C. SARGEAUNT, Crown Agents for the Colonies. Offices of the Crown Agents for the Colonies, Spring Gardens, London.

INDIA OFFICE.—Twenty-five appointments in the upper class of the Electric Telegraph Department in India will be open to competition during the present year. Full printed particulars of the conditions on which candidates will be admitted to the examination may be obtained upon application to the Under-Secretary of State for India, India Office, London, S.W. Ten junior appointments in the engineer establishment of the Public Works Department in India will also be open to public competition during the present year.

PRIZES.

SOCIETY OF ARTS PRIZE COMPETITION.—The works sent in for competition for the prizes offered by the Society of Arts are now open to the inspection of members and their friends. The number of works sent in for competition is sixty-two, beside six others sent for exhibition only. There are but three competitors for the prizes offered by the Worshipful Company of Plasterers.

GOOD IN ALL.

SMITING upon the anvil,
Plying the loom or plough,
Wiping the sweat of labour
Off from the weary brow—

Serving in shop or kitchen,
Ruling in court or hall;
Be they but true and honest,
Then there is good in all.

Each in his own vocation
Striving to play his part,
Each from the ways of evil
Keeping his hand and heart—

Then, though many misjudge them,
And many more miscall,
God, looking down from heaven,
Seeth the good in all. G. E. M.

CORRESPONDENCE.

**** We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

EXHIBITION AT BIRMINGHAM.

To the Editor of the WORKING MAN.

SIR,—As it is your intention in your new paper, to which I wish all the success it will deserve, to give a few articles on working men's exhibitions, I trust that a question of such import to working men as the following, will be well ventilated, viz.—Why is it that so many working men's exhibitions have hitherto failed? A friend, in answer to that question to-day, said, "Because of the mixture of classes." If that be a correct answer, if it really be a fact that the working classes and the upper middle class cannot work harmoniously together, why "there must be something rotten in the state of Denmark." I hope that your articles may point out this "something," in order that the defects may be remedied. Now, perhaps, of all the failures of this kind, none has been comparatively greater than the one held in our town lately. It must be borne in mind that a financial success does not constitute a positive success. The object of an Industrial Exhibition is to benefit working men, and from the moment an exhibition falls short of that object it is a failure. The committee of our late exhibition was composed of two classes—part working class and part the upper middle class; the Rector of Birmingham, the Rev. Dr. Miller, was chairman, and the committee numbered seventy-two individuals, eventually proving the truth of the old adage, that "too many cooks spoil the broth." Now the exhibitors complain that they have been deceived and impoverished by the committee of this exhibition, and they base their complaints chiefly on the following facts:—Firstly, that £1,000 having been guaranteed in prizes, they (the exhibitors) contributed articles with the understanding that that sum would be distributed, but although there was a surplus of about £3,000, only £110 was spent in prizes, the intrinsic value of which was about £20. Secondly, that through mismanagement, and through the managers breaking their own rules, numerous articles were broken, injured, or stolen, and that when claims for the value of such articles were made, no satisfactory reply could be obtained. Thirdly, that articles from manufacturers were introduced, and that, therefore, the work of skilled professionals was brought into antagonism with that of amateurs; the circumstances under which articles were elaborated never being considered at all. Fourthly, that though the committee have acted in such a niggardly manner to exhibitors, they are said to have been recklessly extravagant in other directions, and have not yet published a detailed balance sheet. I might go on with these complaints almost *ad infinitum*, but I am afraid your space will not allow it; suffice it to state that the exhibiters, rendered indignant by their grievances, and disgusted with the constant squabbles of the executive, formed a committee to protect their interests, but they sought redress in vain, being met with the reply, that they were "discontented grumblers." I ask you to insert this, having no other medium. The exhibiters' committee were about publishing a memorial volume, giving the history of the exhibition, but it has been most unfairly suppressed.

Respectfully yours,
JAMES GILLMAN.

Highgate, Birmingham,
January 3rd, 1866.

[*We publish the above letter because it seems to open up a serious question. We shall, however, be happy to afford every facility for an explanation of the statements contained therein.*]

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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

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[REGISTERED FOR TRANSMISSION ABROAD.

VOL. I.—No. 3.] SATURDAY, JANUARY 20, 1866. {PRICE 2D. {STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.

THE MANUFACTURE OF GLASS.

Glass and Glass-Blowing.

THE manufacture of glass in this country has of late years developed itself to an unprecedented extent, the trade bidding fair to become, at no very distant period, one of the principal industries of the kingdom. This result is undoubtedly attributable, in no small degree, to the recent abolition of the excise duties on glass, whereby the glass manufacturer was freed from the absurd and senseless restrictions which had hitherto prevented him from making or adopting any extensive improvements in his trade, besides deterring him from undertaking experiment, with a view to the discovery of such improvements. For many years the better and more perfect descriptions of glass were imported from abroad—the British manufacturer, restricted to the production of the inferior qualities, having no chance whatever in the leading home or foreign markets. In America, where the manufacture was free from excessive excise regulations, great improvements had been introduced, but the comparative high price and scarcity of labour prevented them from being followed up so fully or so successfully as they have been within the last few years. In England the manufacture of flint-glass was introduced as early as 1557, and, despite the manner in which it was taxed as a luxury, the number of manufacturers gradually increased, although the glass made by them was of such inferior quality that the supply of drinking-glasses continued to be obtained chiefly from abroad. The use of glass for windows was unknown in Europe until a comparatively late period, for even so late as 1567 glazed windows were a luxury known only to the wealthy; and there being no native glaziers, the work had to be done by foreign artisans, who came over expressly for the purpose. The frames in which the glass was placed were purposely made movable, so that they could be taken out and, if necessary, put away to preserve them from accident. The kind of glass thus used was of extremely inferior quality, and could only be made in small pieces. The colour was generally of a greenish yellow, such a thing as a pure, colourless window-glass being an article almost unknown. It was fitted into leaden frames, each pane being diamond-shaped, and containing only a few square inches. In 1673, some plate-glass was made at Lambeth, but the heavy duties imposed upon the article, together with the limited demand for it, caused its manufacture to be abandoned until nearly a century afterwards, when it was revived, with some measure of success, by a company who had subscribed capital for the erection of works upon a large scale at Ravenhead, near Prescot, in Lancashire. During the reign of William and Mary, the duties upon glass manufactured in this country were so heavy that they had to be speedily reduced, and subsequently abolished. In 1746, glass was again taxed, the duties being increased from time to time, until, in 1806, they became almost unbearable. The principal seats of the glass manufacture are in the north of England, Newcastle-upon-Tyne and Shields producing the largest quantities of the article; but glass-houses may be found in nearly every part of the kingdom. At present, such is the high degree of perfection to which British glass-making has been carried, that our manufacturers are enabled not only to produce specimens fully equal to those of foreign origin, but to compete successfully in the foreign markets. It is in the manufacture of plate-glass, however, that the largest amount of progress has been made. It is but a few years since that the production of a sheet of plate-glass a few feet square was recorded as something wonderful; now it is not at all uncommon to find windows of the largest size consisting of a single pane. Nor is this all, for the strength, clearness, and crystal-like purity of modern plate-glass appear almost marvellous when contrasted with the thin, imperfect, and costly article which was formerly produced by our makers. In Scotland the manufacture is carried on upon a large scale at Glasgow and one or two other places. In Ireland there are glass-works at Dublin, Cork, Belfast, and elsewhere. In our illustration we have given a view of the interior of a glass-house. At a future opportunity we intend furnishing a description of the various processes connected with the manufacture.

History of the Working Men's College,

45, GREAT ORMOND STREET, QUEEN'S SQUARE, LONDON.

BY WILLIAM ROSSITER, SENIOR FELLOW OF THE COLLEGE.

II.—THE TEACHING OF THE COLLEGE.

THE College opened on Tuesday, October 31st, 1854. The prospectus of the first term contained an address to London working men, from which the following is an extract:—

The working men of England are trying, from various motives and in various ways, to educate themselves. Some of them hope that their class may obtain greater influence in the Legislature. They desire that it should qualify itself for that position by the study of laws and of history. Some of them think that there are many maxims of morality current among us which tend to divide and to degrade them. They wish to find out the true principle which binds men together, and shows them what objects they are to live for. Some are impressed strongly with the mischiefs that come to them from their ignorance of the causes which produce disease, and of the best means of securing health. Some wish to understand better the machinery with which they are working. Some feel what a blessing it would be to them if they could use their voices in singing, and their hands in drawing. Some are puzzled with a number of doubts about the world within them and without them, which they dare not stifle, and through which they long to see their way.

Some of us who belong to professions—as lawyers, physicians, ministers of the Gospel, artists, schoolmasters—have thought that we might fulfil our own duties far better, and understand better how they bear upon each other, if we could come into closer intercourse with the working men—if we could bring them into a college with us—if we could spend some of our evenings in helping them to set their thoughts in order on the subjects in which they are most interested, and to gain information on points about which they feel ignorant.

The name College is an old and venerable one. It implies a society for fellow-work—a society of which teachers and learners are equally members—a society in which they meet, not as belonging to a class or a caste, but as having a common life which God has given them, and which he will cultivate in them.

The following list of teachers and studies for the first term of the College, will best show how the College actually began its work with the students whom it called together:—

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Rev. J. LL. DAVIES, M.A, Fellow of Trinity College, Cambridge.
M. GRANT DUFF, Esq., M.A., Balliol College, Oxford.
F. J. FURNIVALL, Esq., M.A., Trinity Hall, Cambridge.
THOS. HUGHES, Esq., B.A., Oriel College, Oxford.
R. B. LITCHFIELD, Esq., B.A., Trinity College, Cambridge.
C. B. LOCOCK, Esq., M.A., Trinity College, Cambridge.
J. M. LUDLOW, Esq., Lincoln's Inn.
J. F. M'LENNAN, Esq., Trinity College, Cambridge.
C. B. MANSFIELD, Esq., M.A., Clare Hall, Cambridge.
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F. STEPHEN, Esq., M.A., Trinity College, Cambridge.
C. R. WALSH, Esq., M.R.C.S.
J. WESTLAKE, Esq., M.A., Fellow of Trinity College, Cambridge.

The following is the arrangement of studies for the first term, November to Christmas, 1854:

TIME P.M.		SUBJECT.	TEACHER.
Sun.	8.30	The Gospel of St. John	The PRINCIPAL.
Mon.	8	Public Health	Mr. WALSH and Mr. HUGHES.
,,	9	Geometry	Mr. HOSE.
,,	9	English Grammar ...	Mr. FURNIVALL.
Tues.	8	Law of Partnership ...	Mr. LUDLOW.
,,	9	Political Terms Illustrated by English Literature	The PRINCIPAL.
Wed.	8	Nstural Philosophy and Astronomy ...	Mr. LOCOCK.
,,	9	Machinery	Mr. M'LENNAN.
Thurs.	7	Drawing	Mr. RUSKIN.
,,	8	Public Health	Mr. HUGHES and Mr. WALSH.
,,	9	English Grammar ...	Mr. FURNIVALL.
,,	8	Arithmetic and Algebra	Mr. WESTLAKE.
Fri.	8	The Geography of England as connected with its History ...	Mr. BREWER.
,,	9	The Reign of King John, Illustrated by Shakespeare's Plays	The PRINCIPAL.
Sat.	8	Vocal Music	

This list of classes will show very clearly what kind of education it has been thought good to offer the working men of London; and the character of this education is eminently *practical*—not practical as merely telling men what they already know, or as amusing them with "popular" descriptions of "common things," but practical in that it takes hold of the very commonest things that surround every Englishman; things which he sees, touches, talks of, every day and every hour; striving by means of these to lead him to observe the law and order that govern him, them, and the whole world.

Thus, we all use words, make them into sentances—it may be very ungrammatical ones, but we use, rightly or wrongly, our mother-tongue. It is from this fact that our college education in language starts. Our teachers take the words we use in our daily talk, tell us what they mean, tell us of their history, whether they are native Saxon words, or have come to us from another people, Danes, Normans, or French. Each word is made to tell its story of people long passed away, taking us back to times of Stuarts, Tudors, Plantagenets; or to the earlier days when Saxons and Normans strove for conquest; or to the still earlier times when both Saxons and Normans were as yet strangers in the land.

In this way the names of counties, of towns, of the days of the week, of the different ranks in society, of the articles of our daily food, all, in the teaching of our College, tell us many a tale, making us understand, far more than any formal History of England could, what kinds of people have lived in this land before us. And the more common the word is, the more likely to be used without thought, the more, generally, it has to tell us. When we have thus learnt to regard words as more than mere sounds, as having in them a definite life and meaning, we are led to discover for ourselves the laws which govern the arrangement of them into sentences; that, having first learnt what meanings words have, we may be able to use them rightly to express our own meaning.

The English classes have been from the very first most successful. So also have been the classes for teaching French and German. In the former (and the latter is fast approaching the same stage) the students have learnt to read French authors with pleasure, and to talk in French with ease.

The ancient languages, Latin and Greek, are also taught; but working men have seldom time to do much more than obtain a thorough knowledge of the grammar of one or both of these. This grammatical knowledge, however, is of the very greatest use, both for mental training and as a help in acquiring a really good knowledge of English. It is hard, indeed, to learn our own language well without a knowledge of the grammar of at least one other; and the Latin and Greek grammars are probably more useful for this purpose than the grammars of modern languages.

Our highest attainment in Greek has been to read the New Testament in its original language; in Latin to read Cæsar, Virgil, or Horace with pleasure; but in French a much more complete mastery of the language has been attained by the men of the French Literature class; and the more recently founded German class is making steady progress towards the same success.

Just as our College teaches us languages because we speak, so it also teaches us arithmetic, algebra, and geometry, because we count and measure; and therefore want to understand the laws of number and space. Our mathematical students have at various times extended their studies beyond these elementary subjects into the regions of trigonometry and mechanics.

The third great division of education—that of physical science—is one especially interesting to working men, and one *about* which they have many ideas, frequently very erroneous. Our College proposing to teach men through the facts of their every-day life, would naturally teach the facts and laws of the *things* around them. The physical science teaching of the College began with a class on Public Health, and has since extended, more or less, to most of the physical sciences. Geology, botany, physiology, chemistry, have all been taught, and the students in every class have been encouraged to study *things*, and not merely names. The geological students have furnished the College with a most valuable collection of fossils and minerals; while the botanical students have collected and arranged a sufficient number of dried specimens to form a very fair nucleus of an Herbarium.

But besides the great divisions of language, mathematics, and physical science, there are other studies even more interesting to men taking a daily share in the world's actual work. Men are not as schoolboys, equally willing (or unwilling) to learn whatever is put before them. A journeyman carpenter, or mason, or a bricklayer's labourer, who can neither read nor write, nor even count correctly up to a hundred, is a very different being from the sharpest first-class schoolboy, who may be thoroughly grounded in the "three R's," besides having a smattering of Latin and French, and a knowledge of air-pumps and galvanic batteries.

The boy learns what he is told because he is told, and having learnt it, goes off to forget it in the playground; but the man, be he never so ignorant and stolid, *does* think about the things he sees and hears of, and is puzzled by a hundred thoughts as to why things are what they are, and why people do what they do. The more ignorant he is, the more these things will puzzle him; and when he comes to our College, he will probably sit down in our adult school to spell little words, and form letters on a slate, but not as a boy would do the same work.

He will talk of all kinds of things with the men around him; will enunciate political, moral, and social theories with as much confidence and positiveness as any M.P. or philanthropist. Talk to him about reading, or the rule of three, and he listens like a child; but in matters political or social, the chances are that you feel yourself a pupil rather than the teacher.

The recognition of this fact—that working men do think, and think with interest—about things social and things political, has governed the teaching of theology, politics, and history in our College.

Because we are Englishmen, and because other Englishmen have lived and worked before our time, building up by their lives and acts the English society of the present day, therefore our College teaches us history and politics, that we may know what an Englishman really is and should be. It teaches us history, not as a string of amusing facts and pretty stories, but as telling us about facts with which we have to do, and which have to do with us; which explain to us why English society, political and social, is what it is; how it might have been otherwise: better if our forefathers had known how to have made it better; worse, far worse, if they had not done much and suffered much to preserve it to us as good as it is; how it is incumbent on us to do much, and, if needful, suffer much, to keep it from becoming worse—to try and make it better.

Just as our College teaches us history and politics because we are members of a nation, so it teaches us theology because we are members of Christ's kingdom, because we have thoughts about our spiritual as well as about our national life. As English society and our position in it can only be explained by the teaching of history and politics, so Christ's kingdom and our place in it can only be made known to us by the teaching of theology.

Our College, therefore, in all its teaching takes for its starting-point the actual thoughts and experiences of the English workman. It recognises him as one having a place in English society and Christ's kingdom, and strives to make clear to him what that place is. It does not talk to him about things that are merely pretty or amusing, but it talks with him about things which all men think about, and all men strive, more or less, to understand.

To use the words of our Principal:—

What we want is, not to put things into our pupils' minds, so much as to set in order what we find there, to untie knots, to disentangle complicated threads. The starting-point of our teaching must be the topic in which we find that our pupils are taking the most direct interest, whatever that may be. It cannot be insignificant if it is stirring the hearts of any number of people, if it is deeply stirring the hearts of even the one or two we are conversing with. If they are attaching an ex-

travagant consequence to some trivial point, we shall not make them think less of it by treating them or it with scorn. We can only dispossess them of their exaggeration by leading them from the paltry subject-matter to the principle which lies beneath it, and which really gives them their interest in it. When they have come into the daylight of a principle, they will perceive the relative magnitude of different objects which were distorted by the twilight and the morning mist.

While our College thus teaches us language, mathematics, and physical science, to enable us to understand the things around us, it has also taught us drawing and singing, not for use, but for ornament, not as businesses, but as accomplishments; but it has also taught us them thoroughly, not as mere pastime; and so our drawing and singing classes have become two of the glories of our College.

The great thing our universities of Oxford and Cambridge do is to turn out, not mere bookworms or pedants, but accomplished English gentlemen. Our College, believing that manual workers are not only Englishmen, but may be also gentlemen, teaches drawing and singing, as means of educating not only our intellects but also our affections.

To quote once more from our Principal:—

The great problem of all, then, is how to make men know that they are persons, and therefore that freedom and order are their necessary and rightful inheritance. There may be various ways of solving this problem. One of them may be by teaching household economy; one of them may be by teaching what many call an accomplishment or refinement. I do not care what influence you bring to bear upon the man, provided it does its work, provided it rouses him to be a man.

Apprenticeship: its Rights and its Duties.

IN directing our attention to the position and wants of all classes of working men, it is our design to pay due regard to the requirements of the great body of Apprentices in this country. During many years' acquaintance with all ranks of the working classes, we have had frequent opportunity of observing the unsatisfactory relation in which the apprentice often stands to his employer, and the want, on both sides, of clear and just views as to what apprenticeship really is, and the duties it involves on either hand. It is our object, in the present paper, to explain briefly the origin and purpose of apprenticeship—what is due to the apprentice and to the master—with the provisions established by law to meet the difficulties from time to time arising between them.

The very word *apprentice* is itself an indication that the custom now known as apprenticing took its rise at an early period of our history. It comes from the French word *apprendre*, to learn, and was adopted at a time when Norman-French was the prevailing language among the higher classes of our people. In feudal times it was found necessary by persons engaged in trade to associate together for the protection of their mutual interests, for the maintenance of their privileges, and for the security of independence and freedom in their transactions. In this way combinations or companies of citizens were formed, and rapidly acquired great influence and consideration. The next step was to secure that no persons but those duly qualified should be admitted to practise any particular trade; and with this object it was insisted that, before a man could exercise a calling, he should have been apprenticed, or *taken to learn*, by some one already a member of that trade fraternity.

This was the origin of apprenticeship, which is supposed to have sprung up in the twelfth century, and in time became an established custom throughout Europe.

It would be highly interesting to trace the history of apprenticeship and apprentices, as a body, in England; but we can only briefly touch on this branch of the subject. So prevalent had the practice of apprenticing boys become about the year 1400, that complaints were made that sufficient labourers could not be found to follow the pursuits of husbandry. It was therefore enacted, by a statute passed in the reign of Henry IV., that no person who had not land or rent to the value of twenty shillings per year—a much larger sum in those days than at the present time—should be allowed to bind his son or daughter apprentice. This statute was afterwards repealed, so far as regarded London and one or two other important towns; but the estimation in which apprenticeship was held, in the metropolis especially, at this time, and down to a far later date, may be gathered from an old writer, who says:—"From all shires and counties of the kingdom of England and dominion of Wales, the sonns of knights, esquiers, gentlemen, ministers, yeomen, and tradesmen, come up from their particular places of nativity, and are bound to be prentices in London."

The term of apprenticeship is supposed to have varied in different trades and different parts of the country. It was, however, settled and made uniform by an Act passed in the fifth year of Elizabeth's reign, which established seven years as the period in all trades throughout the kingdom, and persons who had not served this apprenticeship were expressly excluded from entering any particular calling. Down to the beginning of the present century this Act remained in force; but it was then felt to be far too exclusive in its provisions for the advancing spirit of the times, and so much of it as enforced apprenticeship as a means of entering a trade was repealed by a statute passed in the reign of George III. At the same time a reservation was made in favour of London and other corporate towns, which were allowed to retain, at will, their established customs.

Apprenticeship, therefore, is no longer a necessity, *by law*, to any one who would work at a handicraft. Practically, however, it is still insisted on in many trades, which are either wholly or partially closed to persons who have not duly served their time as apprentices. And, although no longer enforced, it is still recognised by the law, which provides for the rights of both master and apprentice, and the settlement of disputes between them.

The indenture,* or deed of apprenticeship, is a contract between the master or tradesman on the one hand, and the apprentice on the other, the former undertaking to teach the youth his trade, in consideration for which instruction the latter agrees to serve him for a certain time. In many cases the youth, or his friends for him, pay a premium to the master whose trade he is to learn; and in the majority of instances the master undertakes, by clauses in the indenture, to provide his apprentice with food and necessary clothing, or the means of procuring them, during the whole term of the engagement. The advantage arising to both parties out of this contract is, or ought to be, mutual. To the apprentice the most obvious benefits are the following:—

1. He is enabled to become thoroughly proficient in a trade or handicraft, by the exercise of which, with industry and skill, he may at all times obtain the means of livelihood. It is highly probable that he may even go beyond this, and in time acquire a competence in the trade so learnt. But in all cases it provides the means of securing the immediate necessaries of life, and a position of honourable independence before the world. For the man who has been taught a trade, and has it, in common phrase, at his fingers' ends, can scarcely be placed in a position of permanent want or distress, unless unforeseen affliction paralyse his energies.

2. Another advantage which apprenticeship confers, is the fact that by its means a man is enabled to go forth into the world, stamped and guaranteed, as it were, as a proficient in his business. Whatever may be said as to apprenticeship not being actually necessary in any trade, no one would contend that the man who has spent many years in learning it is not in a better position to practise it, with advantage both to himself and his employer, than he who has received no such continued training. All things being equal—natural aptitude, industry, &c.—he must, on the contrary, be a superior workman, and would therefore obtain employment where the other would fail. Moreover, in the majority of trades, and in our large towns generally, the apprenticeship system still prevails, and none but workmen so qualified can obtain admission to practise their calling. What "taking a degree" is in the professions, apprenticeship is in the trades. What the mint mark is to the coin, apprenticeship is to the workman. The metal may be, in one sense, quite as valuable without the mark as with it; but the mark enables it to obtain general currency.

It is the part of the master to secure advantages to the apprentice, by properly instructing him in his business, by providing for his necessary wants (in the case of in-door apprenticeship), and by exercising a judicious and kindly interest and supervision over his general conduct, so far as it properly falls under the master's eye. But these duties on the part of the master are accompanied by corresponding duties in return. The apprentice has to fulfil *his* part of the contract. In the first place, he is essentially *one who is to learn*, and, therefore, a teachable and tractable disposition is the first requisite on his part. In the next, he stands in the relation of inferior to superior, in respect equally of age, experience, and responsibility in the trade; and he has, therefore, to bow to the master's authority in all matters within scope of the contract. Kindliness and forbearance are to be exercised on the one side; civility and deference on the other. Again, it is the duty of the apprentice to study to promote, as far as possible, his master's trade interest, and to reveal none of his secrets in the "art and mystery" he may practise. And finally, the apprentice is especially bound to fulfil the whole term of his engagement. After he has been taught the trade—or, at least, has learnt so much of it as to make his labour remunerative—he is to continue with the master, and allow *him* to reap the benefit of his services for awhile, and thus repay him for the great disadvantage under which he has laboured in the early years of the engagement. To leave him as soon as the work began to make return would be an unfair breach of contract; moreover, it would disqualify the apprentice himself from reaping the full fruits of the engagement, which he can only enjoy on completion of the entire term. Too often it is the case that the apprentice who, towards the close of his time, can work nearly or quite as well as the journeymen around him, begins to murmur or feel discontented at the conditions under which he labours. As well might the master have desired to repudiate the contract in the first or second year. Both parties have an advantage to reap, at the expense of a corresponding disadvantage, at one period or other of the term. The contract is a perfectly equitable and just one; but, on the whole, the weight of benefit is on the side of the apprentice, who derives a *permanent* advantage in the proficiency he acquires in his trade.

We must defer for another paper an outline of the law affecting master and apprentice in their mutual relations, which will give us an opportunity of touching upon some points of dissatisfaction that frequently arise between them.

(To be continued.)

* So called because two copies of the writing were usually made on one sheet of parchment, and then separated by an irregular or *indented* cut, each of the parties to the contract taking a copy.

THE HOMES OF THE POOR.

(Selected.)

OH! the homes we give the poor!
In the alleys damp and grim,
Where all noisome vapours swim,
In the cellar-caves that drink
Poison from the sewer and sink,
Are the homes we give the poor.

See the homes we give the poor:
Piled to weary, dangerous heights,
Toward heaven's cold and pitiless lights,
Chilled above by wind and snow,
While the fire-fiend lurks below—
See the homes we give the poor.

Are they *homes* we give the poor?
Danger sits by every gate,
Pain and misery round them wait,
Ghostly tenants put we in,
Death, disease, and shame and sin—
Homes they are not for the poor.

Have we no homes for the poor?
Hold we earth so cramped and bound,
Place for these cannot be found?
Do *our* homes so wide expand
That they cover all the land?
Leave we no homes for the poor?

Near us ever are the poor:
They are nearer than we think;
We but stand upon the brink
Whence we push them; and their fall
Shakes the mansion and the hall:
We are very near the poor.

Ask we how to bless the poor?
Build them houses not unmeet
To be trod by human feet—
Give them homes; and blessings thus
Shall run swift from them to us—
From the homes we give the poor.

*An Address.**

TO THE WORKING MEN OF THE UNITED KINGDOM.

The question may be asked, "Is there not a danger of men losing earnestness in proportion as they acquire a higher degree of culture?" Yes. Dangers attend everything we do. There is no man so terribly in earnest as a fanatic with one idea—"seeing right and truth in nothing else." Nothing like bigotry and ignorance to ensure unyielding tenacity of purpose, and indomitable energy, *except* the highest and widest knowledge, combined with the holiest devotedness to duty and to God. We are not to refuse culture and information lest, in losing one-sided bigoted earnestness, we fail to win that far higher earnestness which comes from a nobler source. Still, the danger is there, no doubt. Philosophers, poets, sages, artists, are seldom men of action. As people get knowledge and worldly wisdom, they may easily be tempted to care for nothing particularly, except their own comfort. Happily, there is no fear that English working men will fall into this state at present through gaining greater knowledge, for it is the *morally* best among them that will seek most faithfully to improve themselves *intellectually*.

Again, observe how all this mental improvement and knowledge will help to prevent those "roots of bitterness" already referred to springing up between shopmates and fellow-workers—not merely by helping to prevent that exaggeration which distorts motives, and magnifies offences, but by giving pleasant and interesting subjects of thought, which will divert the mind from morbidly dwelling upon one disagreeable topic, whatever it may be. Very much of the unkindness of the world comes from its unhappiness.

This brings us to the third form of remedy we hope to offer for the troubles of working men, which consists in promoting their rational *recreation*. We want to help you, working men of England, as far as lies in our power, to share more fully in the rich fund of amusement and refining, elevating enjoyment to be found in the literature, poetry, history, art, and science of this and other countries. A great deal of the vice of the world is only the perversion of right instincts. We were meant for play as well as for work—*meant* to have excitement and diversion. "What *shall* I do to make you good?" said a sorely-perplexed mother to her naughty little boy. "'Mooze me," answered the poor little fellow. Of course. The Great Parent of all has formed us to need, and to be the better for, amusement. "Amuse me" is the universal cry, consciously or blindly, of the poor sinning soul to its leaders and guides—of the soul that longs to be kept from evil, but finds no healthy, innocent joys. In the pages of this Journal, and especially in my own department of it, we earnestly hope to amuse as well as inform you who do the hard, heavy, mechanical, often monotonous, work of life—who do it not for yourselves only, but for us, also, who sit apart and are set to work in return for you. We would fain open up to you here a fair little pleasure-garden, into which you may turn sometimes at the close of a weary day or week of toil; where you may forget the cares and irritations of life, where you may enjoy some happy excitement that will leave no sting behind, as you dwell among the scenes of other days, the stirring deeds of brave and earnest men, the lovely and graceful fancies of the artist and the poet. In these columns you will be invited now and then to turn aside from the turmoil and strife of the world, and find peaceful enjoyment; to forget for awhile more important responsibilities, and so be enabled to return to the duties of daily life refreshed and stronger for the change. Many gracious and gentle influences, much stirring and heart-gladdening excitement, await those who will accept it, in the glorious literature of this old England of ours. We aim only at presenting a *glimpse* at its untold riches; preparing, inviting, guiding our brethren to enter into their inherited possessions.

But while we believe that all these and many other good things may be done for you, to some extent, by the humble instrumentality of this Journal and our own special department, and while, of course, there are many other evils and remedies the discussion of which must be reserved for future occasions, let me pray you to remember that I have a far more urgent appeal to make to you here than simply that you should read this Journal. I appear in its columns as the advocate of certain societies—of Social Clubs, formed to secure to you, far more efficiently and permanently than any written or spoken words can do, the blessings so many of us desire to see you possess. Those whom I represent ask you *to form and maintain these clubs* as the abiding strongholds for securing to yourselves the various advantages of which I have now spoken. Our words, here or elsewhere—ay, and our labours, too—on your behalf, weak and imperfect as both are, must pass away, and their influence, little enough at any time, will soon no longer be felt; but if you entrench yourselves, as it were, in Working Men's Clubs and Institutes, they will be to you at once a fortress and a palace, enduring, beautiful, and secure. In the various means and opportunities they offer—in the chat-room and library, the class-room, concert, and lecture hall—in all the agencies you can bring into operation, whether by the help of the best and wisest of your own class, or by that of more highly cultivated friends, who would gladly enrich you, if you desire it, with their own learning, their literary, artistic, or scientific acquisitions, you will find ample and increasing means of enjoyment and improvement, such as the world has seldom yet seen offered to its noble army of hand-workers.

In former ages men lived and died as savages. They have risen slowly, step by step, to the dignity and happiness of civilised men. Ages of struggle and conflict have been preparing for you individually—for every worker among you—preparing to help you to live higher and happier lives than your forefathers lived, whether savage or serf. Brave, good men have done their part. Will you now do yours? Men of genius lay their brightest offerings at your feet. Will you accept them? For thousands of years the glorious work has been going on, accumulating treasures of wisdom, beauty, wonder. At last the whole of the rich and mighty stream of blessings comes down to us—to *you*—*you* who are now reading this paper, and to him, your mate, who might be—truly great opportunities for us all. How are you inclined to welcome them? Will you join with us to help all to use them worthily? or will any of you say, "Leave us to the old ways; the pipe and the pot are all we require?"

We knew, and *you* know, there will be some difference among you twenty years hence—socially, politically, morally—(as there is indeed *now*), according to the answer given to all these questions.

It is impossible to close an address of this kind, without thinking of those dismal days of sorrow and strife which many of you remember in 1839-43, and during which I first became acquainted with you. But I trust those days have passed away for ever. They taught us many valuable lessons, and no doubt the times of "uprooting" and strife, of disappointment and hindrance in all ages, have been permitted for wisest and kindest purposes. But the brighter, happier time of building Palaces and planting Pleasure-gardens, of entering more fully into the rights and duties of Citizenship, of forming noble Industrial Exhibitions, and thriving Co-operative Stores, and permanent Museums of art and science, and brotherly Working Men's Clubs, is always intended to succeed the period of disorganisation and strife.

It has been said of old, "Except the Lord build the house, they labour in vain that build it." In His hands we may leave the great result; and knowing how thoroughly we are all in earnest, you will not think I am uttering cant if I add that we may leave it there with confident hope, remembering another great truth foreseen in glorious vision by the prophet, and continually fulfilled in every age concerning the children of men, viz.:—

> Like as I have watched over them to pluck up, and to break down, and to throw down, and to destroy, and afflict, so will I watch over them to build and to plant, saith the Lord.

Therefore I say that we *may* trust Him for the issue, never doubting that if we all do our part faithfully, working and praying, we shall all receive, in continually greater abundance, those unspeakable advantages and blessings—social, political, moral, and intellectual—to which the words, not of Mr. Gladstone only, but of prophet and statesman, poet and sage—the aspirations of the gifted and the good, in all ages—so emphatically point.

I remain, an old friend to some of you, not unknown to others, a brother to all,

Yours in faith and hope,

Henry Solly.

* Concluded from page 25.

Workmen's Home at Guise.

On approaching the little town of Guise, near Saint Quentin, in France, the stranger's attention is attracted by the vast façades of two lofty buildings of a palatial appearance at the extremity of the principal street. They stand in the midst of lawns, groves, and gardens, about fifteen acres in extent, and occupy a peninsula formed by the Oise. The brick façades are highly decorated, having frontals in the centre and at the angles, cornices with dentils, pilasters, and projecting panels, all edged by lines of violet-coloured bricks upon a red ground. The entire edifice is graceful and harmonious, inspires a feeling of grandeur, and surpasses many a royal palace. Yet it is the property neither of a nobleman nor a merchant-prince, but the home of workmen in an iron foundry and their families. It is called the Familistery; and that bridge across the Oise, where you see such constant passing to and fro, connects it with the employer's house, warehouses, and works. His name is M. Godin, and he is one of those rich men whose ambition is to make those around him as comfortable and happy as himself. He has built this magnificent Workmen's Home, that those whom he employs may enjoy every comfort suited to their condition, and that the absence of all that is humiliating, unclean, unwholesome, and unsightly, may raise them morally and materially in the scale of society. His benevolent designs have been rewarded; his costly experiment has stood the test of four years, and proved eminently successful. The capital which he invested in it yields him 6 per cent., and by his thoughtful management 700 poor workmen—blacksmiths, carpenters, enamellers—with their wives and families, are better lodged, clothed, and fed, and have more innocent enjoyments within their reach, than elsewhere fall to the lot of the ordinary tradesman. The establishment is a perfect model, the admiration of all who visit it, the surprise and delight of all who read of it. Having realised a favourite vision of social science, we earnestly trust that it will be widely imitated; and though we fear that its success will not be as signal here as in France, because drunkenness and brawling prevail among us to a greater extent than they do there, because the English working classes are less provident than the French, and submit less easily to discipline, yet we hope, in spite of these drawbacks, to see Workmen's Homes on a similar scale, and with a like system, rising speedily in various parts of the country.

It would require a pamphlet rather than a short article to give a detailed account of the residence in question at Guise. We can but advert to some of its most striking points. To say that it consists of independent apartments, connected in one spacious and handsome building, where the lodgers have ample space, and are secure from bad drainage, noxious cesspools, imperfect ventilation, roofs out of repair, smoky chimneys, high rents and heavy rates, would fall very far short of a fair description. It exhibits in all its minor arrangements the minutest attention to the wants and comforts of the inmates, whether children or adults. Notwithstanding the neighbouring river, the soil is kept dry, and under the building and court are a series of vaults, which contain the cellars. Each lodging has a cellar and granary or loft belonging to it. Wide bays or openings in the basement walls give free access to light and air; the skylight which covers the court has numerous openings, and the court itself is watered in the hot season. In sultry weather the entire enclosure is comparatively cool and pleasant; on each landing of the house there are fountains; and the reservoirs at the top of the buildings are supplied by a small steam-engine. Cleanliness prevails in every part. Some of the women in the Familistery are engaged to wash and sweep

and the average daily consumption of water is five gallons for each individual in the Home—a fact which sufficiently proves how much private cleanliness is attended to.

A thoughtful provision for the children deserves particular notice. The immense skylight alluded to above protects them in their play from rain and snow. Here they try their first steps and their first gymnastics; here they enjoy their healthful sports; here, on grand occasions, school prizes are distributed; and here, on the ground of beaten and polished cement, the merry dance goes round to the music of eighty amateur workmen, forming the Philharmonic Society of the Familistery. A balcony, reached by broad staircases at the corner of the buildings, runs along the façades, and from this, or from her window, the mother at her work can watch her child at play with his school-fellows in the spacious court below. There no dangers menace him, and no restraint is put upon his buoyant spirits. Nor need his mother waste her time in going about the town to make bargains. On the ground-floor are retail shops, directed by a manager. Butcher's meat, bacon, rabbits, vegetables, and every article of daily food, wine, cider, fuel, cottons, thread, and all that the housewife usually needs, is there supplied at cost price, plus a small per-centage to cover expenses. The wives and daughters find employment at the several counters, and each one, in so large a community, can easily obtain remunerative labour. The unmarried workmen get all they require at a restaurant belonging to the establishment, and the meals they take there cost them from 7½d. to 10d. a day. In addition to these comforts, a casino is provided for the workmen's instruction and recreation. They can visit it occasionally, or subscribe by the month. There is a reading-room supplied with newspapers, a billiard-room, and a refreshment-room; and while they chat, or play some innocent game, they are often regaled with music by the Philharmonic Society in an adjoining room. The leader of the band is paid by M. Godin. The general rehearsals take place weekly, and M. Godin's son is one of the members.

Much as we are obliged to omit, we must not forget to say that a medical man visits the establishment daily. His services are paid by a Mutual Benefit Society, formed by the male inmates, which also pays two francs a day to any workman disabled by sickness. The rent of the unfurnished apartment of from one to five rooms is at the rate of 3s. 9d. a month for each room; and the cost of a furnished room for a single workman, with linen and also attendance, is from 6s. 8d. to 8s. 4d. a month. The apartments, with five rooms and a kitchen, and numerous closets and cupboards, the rents of which, free of all taxes and repairs, are £18 a year, would be cheap at £120 in Paris on a third floor.

But these, you will say, are all material advantages. What does M. Godin do for the mind? What provision is made for the children's education? Do they learn only to play and to work, to get money and to spend it? You shall hear. M. Godin's thought for the children is almost without parallel. There is a nursery in the Home called the Pouponnat, for infants from their birth till about two years old. It is provided with elegant iron cradles, supported on two poles and furnished with curtains. These receive the babies while their mothers are at work, and kind nurses attend to them and supply all their wants by day or night. All in the Pouponnat is gratuitous—baby-linen, milk, food, medical care, and everything a tender mother would wish. After the nursery comes the Bambinat. Here the little things remain till the age of five or six, and henceforth their food and clothing is at their parents' expense. The system of education pursued is on a level with the latest improvements, and the very intelligent teacher, wife of one of the workmen, has her two children among the pupils. All the elements of knowledge are simplified, and lessons are disguised under the shape of amusements. The School follows the Bambinat, and is so conducted as to produce admirable results. Signor Pagliardini, himself an examiner, describes them as "wonderful." The boys and girls are taught together, though on different sides of the room, for it is part of M. Godin's plan to foster morality by the "constant, open, and unmysterious companionship" of young persons of both sexes from their cradle upwards. The parents pay nothing for their children's attendance, but are fined a penny for each day on which a child is absent. This is a wise regulation, and is, in fact, the only one which interferes with the workman's liberty. He is denied the right to let his boy or girl grow up idle and ignorant, but in all other respects his life, so far as the Home is concerned, is freedom itself. Punishments are there unknown, except it be the exclusion of the child who has done badly during the week from the private garden, which on Thursday afternoons is thrown open to all the good and diligent children, to their intense delight. It is charmingly laid out with flower-beds and fruit-trees of all kinds, of which they eat in the proper seasons. Another punishment consists in not being allowed to spend part of Sunday with "Mademoiselle Marie." This is a young lady of great ability and high education, a relative of M. Godin, who superintends the Pouponnat, the Bambinat, and the School. In her apartment the children find toys of every kind, and great is their joy when they are permitted to visit her. Their place in the class is determined by their proficiency during the week. We forgot to mention that the parents are not obliged to buy goods at the stores—it is quite optional; but if they do so, it must be for ready money, or they may give cheques to the amount of their daily wages. The manager, the schoolmaster—who is a young professor from Paris—Mademoiselle Marie, and the benevolent founder himself, are all engaged heart and soul in the work, and seem to enjoy to the utmost the luxury of doing good. M. Godin caused this motto to be inscribed on the foundation-stone of the Familistery—"*Dieu nous soit en aide. Hommes soyez-nous favorables;*" and we cannot doubt that he will continue to obtain from God and man that assistance and favour which he has so abundantly earned. To raise the moral character of his workmen and their families is the chief end he has in view, and to attain it he places the means of instruction within their reach, and surrounds them with every comfort.—*London Review.*

TOILET-STAND AND MIRROR.

TOILET-STAND AND MIRROR.

THE true combination of utility with ornament is happily illustrated in the design for a toilet-stand and mirror, which we this week present to our readers. The style of design is that known as the *Renaissance*, which, in French, signifies "*new* birth," and is used to distinguish the particular style of decoration revived by the painter Raphael during the pontificate of Pope Leo X. The great artist was led to direct his attention to this peculiar style, in consequence of the discoveries made by him of various ancient paintings, in some of the newly-exhumed portions of Rome. Adopting the general form of ornament found in these paintings, he grafted thereon a style peculiarly his own, thereby producing the kind of decoration to which the term Renaissance has been given. The design we have furnished, although in this style, is decidedly original, and deserves particular attention. It can be executed in wood or metal, or by a combination of both. The foot, or base of the stand, the group of Naiads and coral stems supporting the shell, as well as the shell itself, might be in metal, the frame of the glass being of wood. A very pretty effect would be obtained if the shell was a real specimen instead of an imitation. We would also suggest that the supports of the mirror should be of real or artificial coral. The height of the stand and glass would be from twenty-four to thirty inches, and in the base cameos might be judiciously introduced.

WHAT IS IN THE BEDROOM?—The importance of ventilating bedrooms is a fact which everybody is vitally interested in, and which few properly appreciate. If two persons are to occupy a bedroom during a night, let them step upon weighing scales as they retire, and then again in the morning, and they will find that their actual weight is at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be more than one pound; that is, during the night there is a loss of a pound of matter, which has gone off from their bodies, partly from the lungs, and partly through the pores of the skin. The escaped material is carbonic acid and decayed animal matter, or poisonous exhalations.

Diffusion of Co-operation.

GOETHE, who, like Shakespeare, said a thousand remarkable things, observed, that "for a man to know one thing well he needs also to know a thousand." It certainly is necessary to know many things to understand one practically. It may be that without the suggestive light of contrast, and the instruction which always comes by comparison, it is impossible to obtain a clear and distinct idea of any subject or object. Familiarity, strangely enough, does not teach; it blunts the perceptions, or it tones down characteristics, while newness of inspection sharpens the eye to observe them. However it may be, every man knows it is so. The traveller, when he comes home, has far sharper eyes than he took out with him. He sees a hundred things in his own land and native place that never struck him before. He knows better what to value, and has sense to own that many things require amendment which he thought well enough before. Since international exhibitions were held, and the middle class took to travelling to inspect them, aldermen and town-councillors have had much higher taste for improvement than heretofore. Means of comparison are means of wisdom. For this reason we will say something of Co-operation abroad, as it may quicken appreciation of it at home.

The Italians have a proverb, wonderful in its sagacity for that quick-witted people; it is this: "They who go slowly go far." Then Co-operation may be expected to go far, for it goes very slowly. And it has gone both slow and far. It has issued like the tortoise from its Laneashire home in England; it has traversed France; it has overrun Germany; it has crept under the frozen steppes of Russia; the bright-minded Bengalese is applying it; the seen-seeing and far-seeing American is turning over the idea; and our own emigrant countrymen in Australia are endeavouring to naturalise it there. Clearly, Co-operation is becoming what the *Times* used to call "an established fact." Like Liebig's new essence of beef, or a good chronometer, Co-operation is unaffected by change of climate. It remains fresh and wholesome, and goes well.

Professor Talandier published a translation of "Self-help—the History of Co-operation in Rochdale," in a Lyons newspaper, and enriched the translation by valuable notes of his own. M. Elie Reclus, the editor of *L'Association*, has told the moral of that history to the Parisians, in his "Fable of the Blind Man and the Lame Man," in his own "History of the Co-operative Associations of Workmen in Great Britain;" and Co-operative Associations have greatly multiplied in France in consequence. Deputy Schultz Delitsk has inspired Berlin, where, in the east quarter of the city (the Berlin Spitalfields district), the Berlin Shawl Weavers' Association is to be found. Though formed but four years ago by twelve members, they had increased, in March last, to 105, while their capital had multiplied thirtyfold. Herr Schulze not only makes the doctrine of self-help the constant text of his speeches before the working classes, he is continually occupied in showing them how to put the principle into practice. Madame Mario has explained, in *Il Dovere*, of Genoa, the characteristics of English Co-operation to the Italians; and societies of mutual succour, formed under the auspices of the great leader of Italian unity, have for some time been in operation throughout Piedmont. Association has been fervently advocated in Italy with a loftiness of aim unusual in industrial societies.

In Switzerland, we learn, on the authority of Professor Huber—the distinguished advocate of Co-operation in Germany—that there existed in the Alpine land thirty Co-operative Stores in 1863. Indeed, the learned professor of Wernigerode stated some time ago, in reply to Mr. Howitt, that the number of Co-operative Societies in Germany was about 1,000, with a working capital of £5,000,000, or 30,000,000 thalers. The Germans, it must be confessed, are as competent as any people in Europe to weigh a new industrial scheme in the balance, and determine whether or not it is wanting. Therefore, their general adoption of the co-operative principle in practice is proof that there is "something in it."

It fares badly with working bakers in most places. Their wages are not high, and their hours of labour are perilously continuous. Those who have found their way to Australia are followed by, or meet the same ill fortune there. In Sydney, however, they propose to confront it as it might be confronted at home—by a Co-operative Association. The resident gentlemen favour the proposal, and several distinguished clergymen lent their approval and support at the meeting held to form the "Sydney Baking Company." It is some time ago since this meeting was held. The Rochdale results were quoted by Mr. Parkes, the speaker who contributed the greatest information to the audience; and it was clearly felt that it was as much the interest of the inhabitants and consumers of bread in Sydney to have a Co-operative manufactory of it there, as it was that of the working bakers themselves. Co-operation ensures purity of food for the eater, as well as better wages for the journeyman preparer of it.

Mr. Commissioner Hill, the Recorder of Birmingham, whose services to the cause of social progress exceed any praise of ours, lately related an anecdote, which ought to show to the reader that the value of the co-operative principle was discerned long ago by a shrewd people, whose name, in connection with Co-operation, is seldom mentioned, unless by Mr. Urquhart, whose remarkable out-of-the-way knowledge is proverbial—we allude to the Greek merchants. Major Cartwright—whose name only very old politicians remember—once told Mr. M. D. Hill that, in his youth, he (Major Cartwright) served in the royal navy, when, among other parts of the world into which he cruised, he found his way into the Mediterranean Sea, at a time when England was at war with Turkey. Greece being formerly a part of Turkey, our cruisers had to give chase to Greek merchant vessels, but they rarely if ever made a capture. Major Cartwright, who had an inquiring mind in all latitudes, was curious to ascertain the cause of these clever Greek escapes; and he discovered that, after a wise Greek custom, every one of the crew, from the captain to the cabin boy, had a share in the vessel. In fine, they sailed and fought on co-operative principles. Our English cruisers, sharp as they were, could not catch a co-operative ship on competitive principles. An ordinary observer would declare at once that the fear of imprisonment, and probably death, would suffice to make men sharp and brave; and if such risks did not, nothing would. Nine persons out of every ten would say so; and yet it proved, that having a personal interest in the ship itself kept the watch sharper, the arms nimbler, and the dash and daring of the sailors higher in quality than the fear of the gaol or the bullet. Co-operation has faculties for war as well as peace, and moves men by motives stronger than the fear of death. The reader may be assured that Co-operation is a motive power in industry, like steam; and, like steam in Savary's days, it is only as yet seen issuing out of the kettle-spout. It has hardly been set to work. It will turn strange, undreamt-of engines one day.

FEMALE SCHOOL OF ART, QUEEN SQUARE, BLOOMSBURY.—This institution, which was established in 1843, in connection with the Science and Art Department of the Committee of Council on Education, affords instruction in geometrical drawing and perspective; elementary freehand drawing from the flat and from the round; shading from the flat and from the round; drawing from solid models; figure drawing from the flat, from the round, and from the life, including anatomical studies and drapery; wood engraving; painting in water colours, tempera, fresco, and oil, from examples of ornamental art, from nature, landscapes, animals, foliage, flowers, fruit, &c.; exercises in composition, and original designs for decoration. The teachers of the school hold full certificates from the Science and Art Department. Students have the privilege of copying specimens of plants and flowers from the Royal Gardens at Kew; the managers of the Royal Botanic and Zoological Societies also grant free admission to students in the advanced classes, to sketch in their gardens. Examinations for Art Certificates are held annually in March, and are open to all, whether taught in the school or not. Free studentships for one year, renewable on expiration, are granted to all who obtain the first certificate of the third grade. To enable competent and eligible students to have the benefit of a continued course of advanced instruction, they may compete for the Queen's scholarship of £20 per annum, tenable for one or two years, in accordance with the conditions on which the scholarship is granted. In addition to considerable alterations and improvements in the large and numerous class-rooms heretofore in use, a lofty sculpture gallery, 47 feet long by 26 feet wide, has recently been erected, and supplied with the best models, and other appliances for study, ample accommodation being thus provided for an increased number of students. At the present time there are about 90 students, and, with the recent additions, there is now accommodation for 150.

Men who have Risen from the Ranks.

III.—EBENEZER ELLIOTT.

AMONG the half-forgotten but memorable men who have sprung from the working classes, and attained honourable distinction, both for power acquired and service rendered to their own order, must be ranked the once familiar name of Ebenezer Elliott.

In the vicinity of fire and forges, at Masborough, near Rotherham, Yorkshire, the famous "Corn-Law Rhymer"—the name he won for himself by his songs—was born on March 17, 1781. His parents were poor, and the prospects of their son bettering his condition were not promising. In his youth he displayed no aptitude for knowledge. It was accidentally called into existence by a book—one of those wandering works common at the beginning of this century, that fell like seed, sometimes on stony ground, and anon on fruitful soil. It was Sowerby's "English Botany" that fell in young Elliott's way. It had coloured plates of flowers, and these he was tempted to copy, and then the true aptitude for acquiring knowledge discovered itself. He sought out the flowers themselves. He verified his learning in the field, and the flowers—as flowers have often done before with the true lover of Nature—inspired him with song, and Elliott became, as he modestly called himself, a "rhymer."

From Sowerby's "Botany," he turned to Thomson's "Seasons," which he now knew how to understand. Thomson's description of a thunder-storm Elliott endeavoured to imitate. It might be from paucity of books—it might be from choice—but he usefully concentrated his attention on two great masters of poetry—Milton and Shakespeare. Real occurrences, however, were the chief influences which formed his mind, and it was great proof of a wholesome nature, and strong native capacity, that he mastered the events of his time and made them the subjects of his songs.

Southey had the generosity to encourage him, notwithstanding that the rising Yorkshire poet had considerable bitterness of speech in his political advocacy. In those days social oppression was a much more serious thing than it now is. Working men had no organs of their own, and no advocates, as in these times. When Elliott wrote his epitaph on Cobbett, he began thus:—

> "Our friend when other friend was none;
> Our champion when we had but one."

Lines these of noble and discriminating gratitude, which tell the story of days happily gone for ever.

Southey, overlooking the minor and pardonable fault of acerbity in the provincial poet, discerned his genius, and by his criticism taught Elliott, who had the good sense to learn, how to attain force and chastity of style. Elliott, who had natural fire, bettered his instructions, and became a great artist in expression. His poems would well repay study by all young rhymers. Indeed, he was a good critic, reliable and instructive himself, when he wrote criticism to the public; but when he gave an opinion of a friend to a friend, his praise was so wanting in proportion as to be utterly worthless, and could never be trusted. This was dangerous to young men who hung upon his words; but his printed criticisms were full of instruction—he was over-faithful there. His personal merit lay in his resolute and persistent self-culture. He made it the business of his leisure to study sentence-making, and he perfected them like a work of art; and his pride was to finish and polish his songs until bright and keen as his native cutlery.

His public worth consisted in the use to which he put his gift of poesy. He did not write verse for pastime, but for the service of the poor. Against the Corn Laws he directed all his strength. His verse was a cry of rage and tenderness:—

> "Child, is thy father dead?
> Father is gone!
> Why did they tax his bread?
> God's will be done!
>
> "Mother has sold her bed;
> Better die than wed!
> Where shall she lay her head?
> Home she has none!"

He kept no terms with the supine or stupid.

To those who could not, or would not see in what bad government consisted, he answered—

"What is bad government, thou slave,
Whom robbers represent?
What is bad government, thou knave,
Who lov'st bad government?

"It is the deadly *will*, that takes
What labour ought to keep;
It is the deadly *power*, that makes
Bread dear and labour cheap."

But amidst all his noble ire, the love of flowers was inextinguishable in him. They fringed with brightness his fiercest and sombre verse. In his "Forest Worship" he commences—

"Within the sun-lit forest,
Our roof the bright blue sky,
Where fountains flow and wild flowers blow,
We lift our hearts on high.
Beneath the power of wicked men
Our country's strength is bowing;
But, thanks to God! they can't prevent
The lone wild flowers from blowing."

Elliott is plainly of opinion they would if they could. It is often said that Elliott's poetry, expended on political wrongs which have passed away, cannot itself be lasting. Were this true, it would yet be long-lived, for it might be translated round the world, to awaken indignation until all wrong has passed away. Many of the great Corn-Law repealers owed their early inspiration to Elliott's manly, fiery muse. His poems on other subjects were many, and of great merit. Sir Lytton Bulwer was one of the friends of Elliott, and induced Tait to pub ish an edition of all his poems, for which we believe the poet received £1,000. He became an iron-master; and, what is rare among poets, he was a good man of business. His very handwriting was something characteristic; it was almost matchless in largeness and gracefulness. He acquired a moderate competence. He built himself a house which commanded a view of those rivulets and woods he has made famous in his songs. He educated his son, who became a clergyman of the Church of England. A statue of him, executed by Neville Burnard, the Cornish sculptor, stands opposite the Post Office, Sheffield. James Montgomery, a neighbour and contemporary poet, has said of Elliott that "he might be compared with Byron in tremendous energy, with Crabbe in graphic description, and Coleridge in effusions of domestic tenderness, while in intense sympathy with the poor he excelled them all. He was the poet of the poor." And considering that he sprang from the poor, acquired his power by self-education, applied it as one having the authority of genius, and always on behalf of his order, to whom he taught lessons of independence and freedom, Ebenezer Elliott well earned an enduring remembrance among those who raised themselves from the ranks.

*Heat Considered as a Mode of Motion.**

UNDER this title Professor Tyndall has published a course of lectures delivered at the Royal Institution, exhibiting the facts and latest ideas respecting the agent that penetrates everywhere in Nature. A summary of the author's views may be read with advantage.

Two rival theories have divided opinion on the nature of heat—the *material theory*, and the *dynamic* or *mechanical theory*. Until quite recently, the *material theory* had partisans only, or if adversaries, only a very few eminent men. It admits that heat is a kind of matter—a subtile fluid filling the inter-atomic spaces of bodies. It defines heat as *a substance whose admission into our bodies causes the sensation of warmth, and its departure the sensation of cold.* It speaks of heat combining with bodies as of two ponderable substances combining with each other.

According to the views of those who professed this theory, the quantity of heat existing in the universe is as constant as the quantity of ordinary matter, and that all we can do by mechanical means is to etore up heat, or make it come out of its concealment to produce it in full day.

The *dynamical theory*—or, as it is sometimes called, the *mechanical theory*—of heat dispels the idea of materiality in its application to heat. Those who profess this theory believe that heat is not matter, but an accident or condition of matter; that is to say, a *movement of its ultimate particles.*

From the direct contemplation of some of the phenomena of heat, a profound mind is led almost instinctively to admit that heat is a kind of motion. Bacon sustained a theory of this kind, and Locke has expressed the same opinion with singular felicity. "Heat," he says, "is a very vivid agitation of the sensitive particles of an object, which produces in us the sensation which makes us say that the object is warm; so that what to our sensation is *heat*, is in the object only *motion.*"

"I conclude," says Sir Humphry Davy, in his first scientific memoir, "that heat, or the cause of repulsion, is not *matter*. The phenomena of repulsion do not depend for their existence upon a peculiar elastic fluid: in other terms, caloric does not exist."

Heat accomplishes what may be called an internal work. It performs a work in the interior of the body heated, by forcing its particles to take new positions. Heat, then, is a *molecular* movement, an oscillation of the ultimate particles.

Nothing is more interesting to the physicist than to bring out the points of contact and the relations more or less intimate between the divers agents of Nature. We know that they have a common fraternity, we know that they are mutually convertible into each other; but we know, also, but very little of the precise nature of this conversion. We have every reason to conclude that heat and electricity are each modes of motion. We know experimentally that with electricity we obtain heat, and that with heat we obtain electricity; but our notions are very obscure as to the precise nature of the change which this motion must undergo to appear under the form of electricity. In reality, we still know nothing about it. A remarkable connection exists between heat and electricity with respect to their propagation in bodies. A body which is a good conductor of heat is also a good conductor of electricity, as a bad conductor of heat is also a bad conductor of electricity. We can also say that the physical qualities which intervene in the transmission of heat, intervene in the same proportion in the transmission of electricity. This susceptibility common to the two forces indicates a most intimate relation, which future researches will doubtless make apparent. The origin of radiant heat is an oscillatory movement of the ultimate particles of matter; a movement which ether takes possession of and propagates by its own undulations. But in these undulations the particles of ether do not oscillate in the same manner as do the particles of air in the case of sound. The particles of air move before and behind, in the direction according to which the sound is propagated; the particles of ether move from right to left, perpendicularly to the line according to which the light is propagated. The undulations of the air are longitudinal; the undulations of ether are transversal. This is what has been deduced from the aggregate of optical phenomena.

Radiation, strictly defined, is the *communication of the motion of the particles of a heated body to the ether in which these particles are immersed.*

The luminous ether fills the stellar spaces. It makes of the universe a whole, and renders possible the incessant interchange of light and energy between star and star. But this subtile substance penetrates much further still—it surrounds the ultimate atoms of solid and liquid substances.

Certain bodies are transparent because the ether and their atoms have such relations between them, that the undulations which produce light pass between their atoms without their giving up the motion with which they are animated. In coloured bodies certain undulations are arrested or absorbed, but those which give to the body its colour pass without loss.

The connection of the agent called heat with all the other forces or energies of Nature is such that, when it well dominates, it dominates all the rest at the same time. Even now we can foresee, although in a somewhat dim distance, that the progress accomplished opens new issues, gives birth to new progress, which even those whose skill and genius have laid the bases of present knowledge cannot yet foresee.

Heat produces mechanical force, and mechanical force produces heat: common properties must, then, unite this agent to the ordinary forms of mechanical power. Heat is easily produced by friction, compression, and percussion. Where heat disappears motion is produced; and, reciprocally, when motion is arrested there is a development of caloric.

Place a ball of cold lead upon an anvil also cold, and strike it with a cold hammer. The hammer falls with a certain mechanical force, and its motion is suddenly arrested by the ball and anvil; evidently the force of the hammer is lost. But if we examine the lead we find that it is warm; and if we could collect all the heat engendered by the shock of the hammer, and apply it without mechanical loss, we should be able by this means to raise the hammer to the height from which it fell.

The motion of the mass, as a whole, is replaced by the individual motion of the molecules or atoms of the mass, which constitutes what we call heat. Although intense, this motion is so minute, the displacement of the particles which move is so small, that it is invisible. Wherever friction is overcome heat is produced, and this heat is the measure of the force expended in overcoming the friction. Heat is simply primary power under another form; and to avoid this transformation we must annihilate friction.

When a locomotive approaches a station at the rate of thirty or forty miles an hour the brake is applied, smoke and sparks escape from the wheel upon which the brake acts, and the train is brought to a standstill simply by the conversion into heat of all the motive force which it possessed at the moment when the brake was applied. When a cannon-ball strikes a target it is strongly heated, and the theory of the mechanical equivalent of heat enables us to calculate with the greatest accuracy the quantity of heat engendered by the ball when its velocity is known.

The heat engendered by a falling body increases proportionally to its height, simply, and consequently proportionally, also to the square of the velocity. When we know the weight and velocity of a projectile, we can without difficulty calculate the quantity of heat developed by the extinction of its motive force.

For example, knowing the weight of the earth as we do know it, and the velocity with which it moves in space, a simple calculation gives us the exact quantity of heat which would be generated if the earth were suddenly arrested in its orbit—the number of degrees, for example, which this quantity of heat would communicate to a globe of water of a volume equal to that of the earth. Mayer and Helmhotz have made this calculation, and they have found that the quantity of heat engendered by this colossal shock would suffice not only to melt the whole earth, but to reduce it in great part to vapour. Thus, the sudden stoppage of the earth in its orbit would alone bring the elements into a state of fusion by a fervent heat. And if, after the extinction of its motion, the earth, as would necessarily happen, were to fall into the sun, the quantity of heat engendered by this new shock would be equal to the heat developed by the combustion of 1,600 globes of solid carbon of equal volume to the earth.

It is to the mutual shocks of the oxygen of the atmosphere and the constituent principles of our candles and gas-lights that the light and heat of flame are due. Yet the distances which separate the atoms before their combination are so small that it is impossible to measure them; and yet it is in travelling these infinitely small distances that the atoms acquire a velocity sufficiently great to dash against each other with the fearful energy that produces combustion.

When we strike a bell with a hammer the motion of the hammer is extinguished, but the force which animates it is not annihilated: it causes vibrations in the bell which affect the nerves of hearing, and produce the sensation of sound. In the same manner, when the heavy hammer descended upon the leaden ball, the descending movement of the hammer was arrested, but not destroyed: *transmitted to the atoms of the lead*, it manifested itself to the sense of feeling under the form of heat.

The theory developed in this work, therefore, is that heat is a kind of molecular motion, and that this motion may be engendered by friction, percussion, and compression, as well as by combustion.

* Heat Considered as a Mode of Motion. By Professor John Tyndall, LL.D., F.R.S.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

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In the next number of the WORKING MAN *will be commenced a series of papers entitled* "LETTERS FROM LANCASHIRE," *by* A LANCASHIRE LAD.

The Inventiveness of the Working Class.

WHEN a large piece of stone is about to be raised to an elevation, it often happens that it slips through the grapnels which clutch it, owing to the friable sides of the stone giving way, in which case the very density of the mass causes the stone to descend suddenly to the ground. On these occasions, new grapnels, of a peculiar construction, have to be devised, and a firmer clutch taken, whose increasing pressure holds the solid stone securely. The working class may be considered as resembling a stone of this description. It is a body of great weight, and of valuable quality, but its sides are friable, and it is seldom raised by the first or second application of the moral, social, or intellectual grapnels applied to it. If its friable parts only are touched, the great body cannot be raised, the "cause of the people" gives way, and displays, like Sir John Falstaff, "an alacrity in sinking." Failure, however, does not warrant despair; it only reveals mistake. It is a matter of mathematical certainty that every physical body can be raised, by one appliance or another; and it is equally certain that social bodies can be raised in the scale of excellence, if the right means are taken. The moral machinery at first thought sufficient may require some reconstruction, or to be applied with more skill and care.

The science of raising the working class is of very recent date; it is certainly not half a century old. Its first principles are hardly yet settled. The experiments have been very few, and, as is the case with all first experiments, very inadequately conducted. The operators themselves have scarcely been masters of their work—indeed, proper appliances have hardly yet been placed at their disposal. An untaxed and ubiquitous press, the greatest appliance ever created, is an instrument that has come so late, that the full extent of its powers and uses is as yet unknown. No wonder, therefore, if it proves that many well-intended appliances devised for raising the working classes should prove less effective, for a time, than their true and sanguine friends had learned to hope.

This is the case, we think, with Industrial Exhibitions. They have been originated mostly by eminent friends of the working classes. The liberality of the rich has been invoked on their behalf, in the way of guarantees and subscriptions; princes, prelates and noblemen have attended personally at inaugurations, to countenance these exhibitions; private collections of works of art have been emptied—Her Majesty the Queen has made loans of paintings and statuary—to add to the attractions of these industrial collections; but the working classes have not been firmly laid hold of yet.

There is no doubt that the Industrial Exhibitions of the Working Class, as they are styled, have been to a great extent disappointments, considered as illustrations of working-class ingenuity, in the way of contrivance or discovery. That workmen are capable both of discovery and invention, there can be no question. The biographies of successful and distinguished workmen and artisans abundantly testify this. While the chief theoretical discoveries and inventions come from philosophical and scientific thinkers, the majority of practical discoveries and mechanical improvements are undoubtedly made by men engaged in the operative departments of manufacture, and the working of machinery. The history of inventions confirms this. At the same time, it must be confessed that Industrial Exhibitions have not hitherto raised the reputation of the artisan for inventiveness, as they were expected to do. We, however, hold to the opinion that these exhibitions are good in themselves—that they will have the effect intended in the end—but that it is too early to expect great results from them; and that they will require to be continued, and to be explained to the operative class, until that class is thoroughly and personally interested in them. This is certainly not the case at present. This will, however, come in due time. As yet the artisans do not understand how great an opportunity is afforded them of displaying, under the public eye, the skill and inventiveness they possess. They do not exactly understand the part they are expected to take, or what the public require to see from their hands. We are not aware that the matter has been sufficiently explained to them. Very few of them contribute any object of industry to these exhibitions in question, and the majority of those who do, send examples of imitatory ingenuity, instead of original inventiveness. Now the scope of working-class inventiveness is infinite. They seem never to have looked into the field at all. Nobody has opened it practically to their view. Confined, to a great extent, to mere mechanical operations, caused by the minute division of labour—to routine and monotonous employment—it is not to be expected that they will or can take all at once an enlarged view of their powers, means, and opportunities. To look beyond themselves into the wide world of progress, and elect their next step of advancement and distinction is more than is naturally possible to them. Even those above them do not seem to see clearly what they might attempt, and our design in this publication is, in some practical way, to assist in this work.

The Glasgow Industrial Exhibition, recently opened—indeed, the very last which has been opened—is equal to any one which the public has seen. The choice of the building, as respects situation and construction, is happy. The managing and arranging committee have acquitted themselves with marked success. The objects of art contributed as loans from private museums and noblemen's mansions—the Queen herself is a contributor—constitute great attractions. When the works of ingenuity there are estimated, contributed by artisans, many deserve high praise, and command considerable admiration. But when we take into account how distinguished Glasgow is for the intelligence of its operatives, what vast ingenuity and resources exist there, lie sleeping there, and which have not been awakened to interest and exertion—when we consider what Glasgow can do, and see all it has done, it is impossible to resist the impression that these Industrial Exhibitions are as yet in their infancy, and that the art of calling out the inventiveness of that class for whom they are designed is not yet perfected. It might be said, in the language of Goethe, as rendered by Elliott, abating a little the rigour of his terms—

> "How like a stithy is this land!
> And men lie on it like good metal
> Long hammer'd by a skill-less hand!
> But will such thumping make a kettle?"

Union amongst Ploughmen.

BY THE REV. DR. BEGG.

THE ploughmen of the United Kingdom, especially if we couple with them the agricultural labourers, form by far the most numerous class of working men. It may also be said with truth that they are the class of men whose social progress and elevation has made least advance of late years. This one fact seems to demonstrate that mere numbers or importance will not command influence, apart from combined efforts in the direction of self-elevation. It has often been doubted whether it was possible for ploughmen and agricultural labourers to combine, and adopt measures for their self-elevation; and it may, no doubt, be admitted, that with men so widely scattered, often so ignorant, and hitherto, as a general rule, so dependent, combination is peculiarly difficult. But the fact, on the other hand, that the only class of working men in the kingdom who have hitherto neglected all schemes of combined action is, at the same time, the class—numerous and important as it is—subjected to the greatest social neglect, and left, as a whole, most hopelessly behind in the march of material progress, seems to proclaim with trumpet tongue the old maxim of O'Connell—

> "Who would be free
> Themselves must strike the blow."

If their combination is only for the purpose of securing righteous and reasonable objects, is conducted in a becoming spirit, and by the use of lawful means, we believe that nothing can be more fair or important for themselves, as well as for the general community. The elevation of a class of the people so numerous and important—the underpropping thus, in a sense, of the whole basis of the social fabric—is a matter of the last importance to all, but especially to the landlords of the United Kingdom. We are well aware that a different opinion prevails in certain quarters. If the work can only be done at the cheapest rate, no matter though the sturdy, educated Saxon is expelled to make way for the more ignorant and lawless Celt, it is supposed by some that an important object is gained. But this is obviously a short-sighted view, as time will prove. The stability of property, as well as the progress of agriculture, and, ultimately, even the increase and regular payment of rents, must have the closest connection with the existence of an enlightened, contented, and well-conditioned labouring population; whilst

> "Ill fares the land to hastening ills a prey,
> Where wealth accumulates and men decay."

Holding these views, we have contemplated with no little interest the formation of what is rather a new thing—namely, a "Mid-Lothian Farm Servants' Protection Society." It has long been notorious that the state of the farm labourers in the richest districts of Scotland bore no fair proportion to the increase of rents, the houses of the farmers, or even to the ample and almost splendid accommodation afforded to all kinds of cattle. Some of the farmers and landlords themselves have nobly advocated a better state of things, and progress in this direction has of late years taken place; but this progress has, upon the whole, been only partial, fitful, and unsatisfactory. The formation of a regular association amongst the men themselves will not only, in all probability, give steadiness and unity to the march of progress, but will create a rallying point for the farm labourers in some other districts, who have still greater grievances of which to complain. The following are the facts which have already transpired. A meeting of farm-servants from districts in the vicinity of Edinburgh was recently held in the Hall at Slateford, for the purpose of considering as to the propriety

of establishing a Protection Society, and of requesting their masters to grant them an increase of wages. There was a very large attendance, and Mr. James Thomson was called to the chair. A proposed basis of association was read, from which it appeared that the main object of the contemplated union was to secure, if possible, fifteen shillings a week of wages, to be paid fortnightly — a very reasonable proposal, one would suppose, in the present state of the labour market—although the men were evidently aware that labour, like every other commodity, must, to some extent, vary in value, according to the actual state of demand and supply. The meeting was then addressed by a working man from Edinburgh, and we have no hesitation in presenting his speech to our readers as an admirable specimen alike of shrewd sense and right feeling.

Mr. COLVILLE, mason, Edinburgh, then addressed the meeting, impressing upon them the necessity of proceeding cautiously in the matter. In his opinion, the most judicious course would be to appoint a committee to examine the draft that had been submitted before coming to a definite decision. He counselled the farm-servants to persevere in their efforts to better their condition, and stated that it was not till they had agitated for about thirty-five years that the masons were enabled to attain the position as a trade which they now occupied. He thought that the demands of the farm-servants were most reasonable, and if they urged their claims in a proper spirit and with energy, the required concessions would no doubt be made by the masters. Whatever meetings the men might hold amongst themselves, they should never try to run down their employers. Such an act could never be expected to do good; but it would always be found to have an opposite effect. They should speak well of their masters, and try by gentle means to convince them that they are not wrong. (Applause.) Some would be disposed to go in for the whole thing at once; but he counselled the meeting not to follow the advice of these men, for if they did so, their movement would prove a failure. Neither should they hold their meetings in public-houses, but when they had business to perform, they should do it in a schoolroom, or a hall, or some equally convenient place. After getting through with their business, they should go home; and if they did this, there was not the least doubt that their employers and the public would respect them. (Applause.) He would recommend, also, the formation of a sick and funeral fund to act in conjunction with the society. His reason for suggesting that was that such a fund would not only benefit the members, but would be a great means of making them pay their subscriptions, as, by not doing so, they would lose something. After the establishment of the society, he would suggest that each employer should be served with a circular, announcing what had been done. He advised them not to put forward their claims till they were sufficiently strong and united to do so with a fair chance of success. That such a movement should prove a failure was ten hundred times worse than if it had never been commenced at all. He advised the farm-servants to strike only as a last expedient, and after fair means had been tried without success.

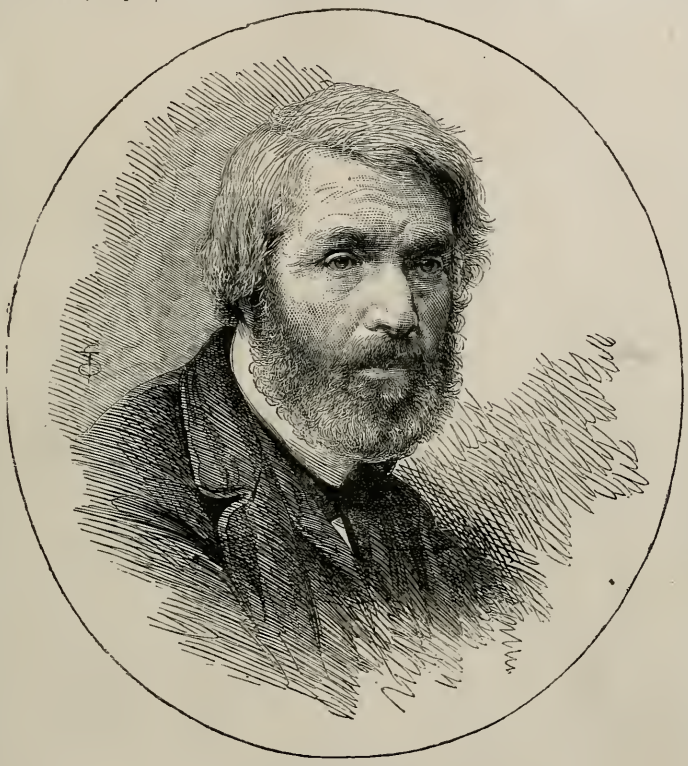
The meeting then agreed to form themselves into a Protection Society, and that steps be taken to ascertain the views of the other farm-servants in the county, relative to the movement.

The following resolution was also agreed to:—

That a society should be formed, having for its object a general union of the farm-servants, not only in the county of Mid-Lothian, but throughout Scotland, with the view of establishing a better feeling between master and servant, and to redress as far as possible the grievances to which farm-servants have been so long subjected, and to obtain for their labour the highest rate of remuneration that the state of the market may warrant them in demanding. It was further resolved, that while this meeting had taken the initiative, measures should be adopted for having the views and sentiments of the other farm-servants in this county and other parts of Scotland ascertained on the subject. A draft of the proposed rules for forming the farm-servants of Mid-Lothian into a society was submitted to the meeting, and remitted to a committee for their consideration, and to report their views thereon at next meeting, and, generally, what steps ought to be taken for carrying out the object of the proposed society in other parts of the country.

The following announcement will indicate the further progress which has already been made:—

On the 24th December, the committee of farm labourers, appointed at the general meeting, met in Slateford Hall, for the purpose of taking into consideration the rules for a Protection Society which had been proposed by their agent. The rules were unanimously approved of, and ordered to be printed. The next meeting was fixed to be held at Davidson's Mains, on Thursday evening, the 4th inst., at nine o'clock.



THOMAS CARLYLE.
(*By permission, from a Photograph by Messrs. Watkins.*)

There are some peculiarities connected with this movement which cannot fail to strike our readers. It is well that its objects are few and clearly defined. But there is one left out which, in our opinion, is most closely connected with the social elevation of the whole class of ploughmen and agricultural labourers, and which we are confident could be most effectually secured by a steady agitation of the kind inaugurated—viz., a uniform supply of good cottages and gardens in connection with every farm, to be as much a regular part of the farm-buildings as the farmer's house and the stables, and other necessary accommodation. Considering the question of the social elevation of agricultural labourers on the range of the kingdom, this is, perhaps, after all, the greatest desideratum. It has the most direct bearing on the comfort of the men; and it is a want, the absence of which nothing can supply. It is a necessity, moreover, which only the landlords of the kingdom have the power to meet. Men in cities can do much towards securing comfortable dwellings for themselves; indeed, if certain existing obstacles were removed, they can by combination solve the whole of this vast problem. But ploughmen are nearly quite helpless. They must take such accommodation as exists, or as the landlords choose to provide, and therefore it is of the utmost importance that a strong public opinion should be created in the direction of a uniform provision of good cottages as one of the standing universal and most urgent duties of all the owners of the soil. It is somewhat difficult to fix upon a precise standard according to which these cottages should be provided; but Mr. George Hope, of Fentonbarns—a most intelligent East Lothian farmer—has suggested that the minimum accommodation necessary for farm-servants, ought to be two cottages for each plough required on a farm—in other words, one for the ploughman, and another to provide for the necessary additional agricultural labourers. These cottages, of course, should at least contain two rooms and a kitchen each, and each cottage should have at least a rood of land as a garden. Such an arrangement might be expected to issue in great good to the whole community—especially to the higher classes—whilst it would impose very little real burden upon the landlords. It would, moreover, in our opinion, afford a definite, legitimate, and most important object for the struggles of a Ploughman's Protection Society, and we venture strongly to recommend it accordingly. How necessary it is that some determined effort should be made to secure such an object, we shall probably illustrate in some succeeding papers, besides giving some information in regard to struggles in this direction which have already taken place.

Thomas Carlyle.

"ALL labour is sacred" is our chosen motto—a text on which many a discourse might be founded. It is one of those pregnant sentences in which a great thinker embodies the secret of his philosophy. Thomas Carlyle, whose words they are, is the man who, in this generation, has preached most eloquently on the claims of great "doers" to the world's admiration. His heroes are those of action—men who, either as lawgivers, warriors, poets, or handicraftsmen, have used their labour as a means of advancing humanity; who have held their work to be sacred, the performance of a duty which devolves on strength. Very often his teachings are oracular, couched in language almost mystical; often, too, wise men doubt the philosophy which is occasionally so hard and cold. But Carlyle is a man of the highest mark, and in his election to the office of Rector of Glasgow University, as successor to Mr. Gladstone, his great genius has been fully recognised.

He was born in 1795, at Ecclefechan, a little village in Dumfriesshire, and was the son of a small farmer. When fourteen years of age he entered the University of Edinburgh, and remained there for seven years. After teaching mathematics at a school in Fifeshire for about two years, he determined to devote himself to literature, and in 1823 commenced his literary career by several able articles in Brewster's *Edinburgh Encyclopædia*, on "Montesquieu," "Montaigne," "Nelson," and the "Two Pitts." He also furnished literary notices to the *New Edinburgh Review*. In the same year he completed a translation of Legendre's "Geometry," to which he prefixed an Essay on "Proportion," and also published his translation of Goethe's "Wilhelm Meister"—a work which betrayed a direction of reading destined to influence materially his future career. On the completion of this translation he commenced his "Life of Schiller," which was published by instalments in the *London Magazine*,

then austained by the talents of Lamb, Hazlitt, Hood, John Scott, and Allan Cunningham. For Goethe and Schiller, two of the "true sovereign souls of German literature," his admiration has ever been unbounded. His letters to Goethe have appeared in the poet's published correspondence. In one of them we find a graphic description of Carlyle's local habitation and mode of life at that period. About 1825 he married, and resided alternately at Arneley Bank and Craigenputtock, a little estate in Dumfriesshire.

In this secluded spot, with a moderate store of books at his command, an occasional contributor to the foreign and other reviews of the day, he remained until about 1830, when he took up his abode in London, and commenced the publication, in *Fraser's Magazine*, of his "Sartor Resartus." In this work Mr. Carlyle gave evidence of much of the peculiar power which characterises his more recent works. In 1837 he published "The French Revolution," a history which abounds in pictures of the most vivid and graphic description. Two years after the publication of this work appeared his "Chartism," and about the same time five volumes of his "Essays," collected, for the most part, from periodical publications. In 1840 he delivered a series of lectures on "Hero-worship," which were afterwards published in a collected form. His "Past and Present" was published in 1843. In 1850 Mr. Carlyle favoured the world with his "Latter-day Pamphlets," essays suggested by the convulsions of 1848—an era which he describes as "one of the most singular, disastrous, amazing, and, on the whole, humiliating years the European world ever saw." His "Life of John Stirling" has been described as "one of the finest biographies ever written." Mr. Carlyle's characteristic, says one of his admirers, is a rugged earnestness of expression, and a range of thought widened and deepened by his acquaintance with the writings of the great German thinkers. In 1845 Mr. Carlyle enriched historical literature with his great work entitled "Oliver Cromwell's Letters and Speeches, with Elucidations," which immediately attracted public attention, and gave him a distinguished place among the historians of the age. His latest work is the "Life of Frederick the Great," a very brilliant work, but unsatisfactory as a tribute to mere strength of will, unaccompanied by conscience.

The Temperance Question:

ITS ECONOMIC ASPECTS.*

WORDS have their histories, and economy has a very interesting history of its own. It appeared in the Greek as *oikonomia*, and was transferred to the Latin under the form of *œconomia;* its signification in both languages being pretty similar—viz., the regulation of household affairs, and provision for household wants. Passing into English, it was first spelt as "œconomy," and was originally confined to the classical sense; but afterwards it shortened its letters to "economy," and enlarged its meaning, by including all kinds of action for securing the utmost benefit at the least amount of cost. Economy is in marketing what the straight line is in mathematics, and as Temperance is the wise regulation of appetite, economy is the wise regulation of expenditure. But while the old meaning has been extended, it has so far flavoured the new word, as to make it natural to associate ideas of economy with family affairs. When used alone, the term instinctively calls up a domestic scene, with the foreground of a careful father and thrifty mother uniting their best efforts to make their means go farthest for their own and their children's good.

It will be conceded by every one that intemperance is anti-economical; for it consumes present means, and forestalls, or cuts off, future resources. It eats up time, health, and industry, and thus renders either saving or getting a difficult, if not impossible achievement. The Temperance question is, therefore, of necessity, an economical one, and every inch gained from intemperance is, in effect, an inch or more added to the territory of a satisfying and ennobling economy. For this reason, if for no other, the Temperance movement should command the esteem and good wishes of every economist. It is the only social organisation that has exhibited a capacity of grappling effectively with social intemperance; and where its success has been the greatest—as, for example, in Ireland, during the Temperance mission of Father Mathew—the economic results were not among the least remarkable phenomena of that wonderful revolution. In Waterford alone, it was estimated that, in 1842, there was at least £100,000 worth of domestic articles in the cottages of the labouring classes beyond the value of such things possessed two years before, besides a considerable increase in the savings banks deposits. Both the power and disposition to economise spring up, as a rule, whenever intemperate habits are abandoned; and if, as computed by Mr. Charles Buxton, the number of families cursed by intemperance in the United Kingdom is not fewer than 600,000, who can set bounds to the extension of economic principles and practices that would accompany the removal of this mass of intemperance, or any considerable portion of it? The Temperance question, as bearing upon the curse of intemperance, is, consequently, entitled to the sympathy of all who wish the sceptre of economy to be swayed over regions now enslaved by drunkenness and waste. As the inebriate must choose between intemperance and abstinence, every economical impulse must incline us to rejoice in the success of the agency that urges him to the safe alternative, and makes its adoption all the easier by the force of example and association.

But deducting 600,000 from the six million families of the British isles, there are upwards of five millions left whose prospects are not beclouded and springs of happiness poisoned by the gross intemperance of their principal members. Shall it be said of them that they have no interest in the economic aspect of the Temperance question except the interest they may benevolently take in the reclamation of the intemperate? That is an interrogatory which the advocates of Temperance would answer in the negative, and they have a right to be calmly and dispassionately heard. They may argue that, if the facts and illustrations of our first paper are to be accepted, they establish a connection between abstinence and economy, not only in the case of drunkards, but of sober persons, individually considered, and therefore of individuals joined in the family relation. If a single man or woman cannot, for the reasons there assigned, spend much or little money in intoxicating liquors, in accordance with economical principles, it follows that married people and parents cannot do so either. Alcoholic liquors do not become more necessary or nutritive when used by husbands and wives than when used by bachelors and spinsters; nor can heads of households pretend to more spare cash than those less fortunate folks who carry their families under their bonnets or their hats. The probabilities run, beyond doubt, in the contrary direction. Unmarried persons may incur expenses without at least the same offence against economic law which married persons would commit, were similar expenses to be contracted by them. A proper provision for domestic needs is a paramount obligation; and these embrace not only present necessaries and comforts, but such a practical foresight and provident arrangement against contingencies as cannot but add largely to the yearly outgo. There are, of course, thousands of wealthy men to whom this consideration does not offer any difficulty. They have enough and to spare; and after making suitable provision for their families, they can afford a good round expenditure on the simple elegances or indulgences of life. Even they, it is to be remembered, are not exempted from the law of using their means rationally and usefully, and no measure of riches can ever justify extravagance and excess. But in all communities the wealthy are the few, and among "the people" the cry of superabundant resources is the last that will be raised. Working men's wages, which vary from eight shillings a week in some agricultural parts to three or four pounds in some manufacturing trades, never permit, economically, of a systematic expenditure for articles of questionable or trifling utility. The artisan has a right to join the "dulce" with the "utile"—the comely and comfortable with the serviceable; but the "utile" must be his first study and his last. The question, then, to be submitted is—Can domestic economy be best exemplified by the use or the disuse of intoxicating drinks? Where liquors are paid for in small sums, or at frequent periods, the yearly aggregate would often astonish were it added up. The expenditure of a family in such drinks *may* be so minute as to place its annual total at a very moderate figure; but, to be fair, we must take the facts as they present themselves in actual life. The annual expenditure of each family in Great Britain on intoxicating liquors, stating an average, is from £12 to £15; and there is reason to fear that, without being chargeable with intemperate habits, the outlay in many working men's families is considerably larger. The late Rev. J. Clay, of Preston, found that out of £154 16s. earned weekly by 131 hard-working men employed by one master, £34 15s. were spent in drink—22·4 per cent., or upwards of one-fifth of their wages. The common fallacy, which makes intemperance synonymous with intoxication, and it alone, conceals from many the loss they and their households suffer from the absorption of a large part of their wages in beer and spirits. Conscious that they do not get "drunk," they conceive that no mischief is inflicted, and no wrong sustained. They do not see that by placing a fifth or a tenth of their wages in the publican's hands they are cramping themselves, and depriving their children of advantages which will be a drawback to them as long as they live. A few pounds a year would make all the difference in the way of a sweeter dwelling, warmer clothes, a better education. Ask the reason why these are not procured, and the answer will probably be, "We cannot afford them"—a true but incomplete reply, which, were it faithfully amplified, would read thus—"We cannot afford them while we buy our regular (or irregular) quantum of liquor." If other evidence were required that domestic economy is sacrificed by very much of the drinking that passes for moderate, and is really far removed from degrading intoxication, it is furnished by the experience of men who have been abstainers for years. Some of these become well-to-do, and their better fortune is sometimes, but not always, borne with the meekness and modesty that adorn the prosperous career. But the great majority of Temperance members in the middle and working classes have no surprising narratives to relate. They say, when questioned, that without spending a penny in drink, they find it enough to do to make home comfortable, discharge husbands' and parents' duties, pay their way, and insure against a rainy day. This testimony is extremely valuable as bearing on the problem how domestic economy may be promoted among society at large. It suggests whether getting rid of the drink is a preliminary condition that must not first be tried. The money spent in liquor is not replaced from any other source, and it does not add to the power of earning a larger income. To say the least, then, it is desirable that the members of every family should take counsel with themselves concerning their account with the publican and the wine merchant—what it reaches to, and what it offers in return. There is an Eastern story of a man who ruined a rival by presenting him with a white elephant—a gift which etiquette forbade him to refuse, and which did nothing but eat up his owner's stores; and if the economy of drinking became a household question, many heads of houses might discover that they had been entertaining, under another name, a wee white elephant, that could not be too soon dismissed from under the family roof-tree.

* Continued from page 3.

A WORD ON CLOCKS.—Ingenious men of all ages, from Archimedes, 200 years B.C., to Wallingford, at the commencement of the fourteenth century, have been cited as the inventors of the clock. The fact is, that the clock, like almost every other useful implement, gradually grew to perfection: one man suggested wheel-work; another the weight for maintaining or driving power; another the balance for regulating the expenditure of that power; another the dial and hands; another the striking parts, and so on; and, at last, one man combined all together in one machine, and gained the credit of making the first clock. This man appears to have been one Henry de Wick, or de Vick, who placed a clock in the tower of the palace of Charles V., about the year 1364, which clock is the most ancient of which there exists any particular description. The principles upon which it was constructed were essentially the same as those of the clocks of the present day—that is, there was a moving power and a regulating power. The moving power was a weight hung to a cord, wound round a barrel; the unwinding of which, by the fall of the weight, gave motion to a train of wheels that moved the hands around the dial. The regulating power was a balance-wheel, swinging backward and forward after the manner of the watch-balance, so familiar to us all.

*Robert Dalby and his World of Troubles.**

A BOOK recently published illustrates the career and capacity of "a child of the people," as the French would say, better than any book which has appeared for years in England. It is entitled "Robert Dalby and his World of Troubles." His "world of troubles"—there is a homely Saxon sound in that phrase which moves the sympathy of common men. The story of the book is the story of a youth of humble station, born on the very borders of pauperdom, who becomes a draughtsman, a craftsman, a carver, a modeller, a painter, and, what implies even wider knowledge and yet more devotion to art, a restorer of old paintings; and finally a "connoisseur." The story is the story of no common man, and told in no common way. It has humour which moves to laughter, and pathos which moves to tears. The laughter is genuine, and the tears flow unbidden. Nor is the book wanting in instruction, such as has rarely been given before in the annals of art literature, animated as it is by a Divine sentiment of veneration for truth and excellence.

It is seldom that a man of genius can tell his own story. Often dulness, amounting to a disease, is epidemical among men whose lives are eminent, and whose powers are a marvel. There was a splendid poem in Oliver Cromwell's life, but it never got into type until Carlyle placed it there. The author of "Robert Dalby" is an exception. His story has a naturalness which surpasses invention. His "world of troubles" of the author must be real, we take it. It is the history of a workman in art whose pictures of English life and incident are as quaint and amusing as any Dutch interior ever painted—as vivid, without the vulgarity peculiar to many of those celebrated performances. The pen of the author of "Robert Dalby" is as clear as the pencil of Canaletto; and in every page there is that fervour of art which lends life and lustre to the bewitching pages of Ruskin. There is no experience so romantic as actual experience, if he who has had it can tell the story of it worthily. Robert Dalby tells it so. There is genius in a pen which can recount an humble story in words to which the reader shall prefer to recur.

In the course of events, in the early career of the hero of the book, Robert Dalby passes some time at a charity school, and rises to the dignity of monitor, the chief distinction being that, instead of being "taught and flogged gratis," he teaches and is flogged without expense, and without cause, also, which is yet more vexatious. To the duties of monitor, he adds those of an errand-boy. He is living, as the reader will see, in a university town. It is thus that the author tells of the difficulties into which his love of art brought him in the unhappy days when he was messenger and monitor.

THE ERRAND-BOY'S FLIGHT TO SCHOOL.

In addition to my attendance at school, I soon had also other duties to perform, hardly less irksome. For a weekly payment of one shilling and sixpence, I became errand-boy to a small stationer, thus filling up every spare moment of my time between school-hours, my dinner, which I carried in my pocket, being not unfrequently eaten as I passed to and fro to the colleges with my parcels at the top of my speed. Among my master's regular customers was a scholar and divine – a fellow on one of the foundations, who, out of a small income, managed to keep a mother and a sister, the latter as beautiful as an angel. This gentleman borrowed oratorios of my master, and in his delightful simplicity, and without design, managed to give me more trouble than almost all the other collegians put together. Scarcely a day passed, without my having to visit this poor quiet scholar. There was one luxury, of which he had long wished to avail himself without stint. His position as a fellow of the college gave him the privilege of using the chapel organ, one of the most perfect instruments in the world. One difficulty only stood in the way of thus rendering himself perfectly happy—that was, he had seldom the means of engaging any one to blow the bellows. One day, while discussing this difficulty, his sister cast her blue eyes upon me in such a way as to leave upon me the impression that something out of the common way was uppermost in her thoughts, and in which I myself was in some way concerned. A small three-cornered note to my master revealed the plot. I was selected to blow the organ bellows for the best of brothers. My master, with his usual promptitude and liberality, returned an immediate answer, placing my best endeavours at the service of his fair correspondent. The favourable response to her request reached the lady, as she sat with her brother at luncheon, at the window of a dark Gothic room overlooking the college gardens. Never shall I forget the expression of that face: never did I feel happier than in thus becoming the humble means of making happier one so good and so fair. Only St. Cecilia herself could have thanked me with so sweet a grace, as, handing me some fruit from the table, she requested me to go over to the chapel porch, and there await their coming.

By the aid of a stool, I contrived to reach the handle of the bellows, and after a little practice was enabled to perform tolerably well the office of supplying the huge instrument with the essential element of wind. Straightway the vaulted roof of the chapel was filled with sweet music, and a soft small voice rose above the organ's swelling tones. The joy of the brother and sister was complete. It was a day in June, sunny and warm. The gorgeous stained-glass windows rained down a thousand bright and variegated tints upon the tesselated chancel floor, and lit up, as with an unearthly radiance, the famous altar-piece, where a fair woman with a neck of ivory, flushed face, and streaming eyes, knelt at a tomb in a garden of roses. It was the Mary Magdalene, on the morning of the resurrection, as she appeared in later times to the rapt vision of an old Spanish painter.

The singer paused, the music ceased, and the lady appeared, as I thought, to censure me for my inattention. The picture had so engrossed my thoughts that I had unconsciously faltered in my indispensable exertions at the bellows. She, however, came not to censure but to thank me for the skill I had exhibited on the occasion, and to further arrange for another day. It was with some difficulty that I aroused myself to my ordinary frame of mind, for the old picture was before my eyes and in my thoughts. Had I not read, even then, of poor boys becoming great painters, and of their being honoured by popes and emperors? And were not vague but alluring images floating in my brain? One of the conditions of art eminence was mine for certain—I was sufficiently poor. Giotto himself could hardly have started better in the matter of his finances; for at the moment of which I am speaking I was not, I believe, in possession of a penny piece.

My delightful dream of old masters and young genius, in the organ loft, was, however, suddenly and cruelly cut short. The last words of the lady had scarcely ceased, when a message from the clock-tower informed me that at that particular moment my harsh preceptor at the school had taken his place at the desk, and had commenced calling over the names of the boys, in which, as a matter of course, my own would not be forgotten. A tremor ran through my whole frame, and well it might. It was a terrible moment for me. One, two! The clock of Saint Margaret's had proclaimed the hour, and out of the forty thousand inhabitants in that old city not one could be found to dispute the accuracy of that quaint, faithful herald of the fleeting moments. What the Horse Guards clock is to the metropolis, St. Margaret's was to Oxenbridge. The fact stared me in the face that I had to run, almost for my life, nearly two miles, in next to no time; and desperate as I was, I made the attempt. In a few seconds I was in the quadrangle and through the porch. The porter just opened his drowsy eyes, as I passed apparently without touching the stones, like as a "Moll hern," all legs and wings,* skims over the moor and along the sedgy shore of the silent stream, taking many turnings and windings, but withal travelling with desperate haste, out of sight before the sportsman is well apprised of his presence, much less has time to take aim. Vagabond boys in every part of the city saw distress in my speed, and got in my way; now and then a dog would rush out from some entry or door-step, and hang impedingly on my rear. Onward, however, I flew. The streets and lanes were narrow, crooked, and dark; but I knew every inch of ground, I might say every stone, and was prepared for curves and angles innumerable. Twice I fell, and scrambled forward as I got up. My cap with the red tassel in one hand, my task-book ("The Chief Truths of the Christian Religion") in the other—onward I still ran. Now I cast my eyes up at the clock of some ancient tower, of which there were several in my route, hopingly—despairingly. Could I be doing the journey in no time? Would the minutes stay their unresting course that I might still escape being "cut in two in the middle," or "flogged within an inch of my life," as the case might be? One clock, apparently at a stand-still, encouraged the hope which another, half an hour in advance, dashed furiously to the ground. The clocks spoke no comfort. Breathless, heated, tired, hungry, terrified, I at length reached that dreadful place of martyrdom—the school. Four steps, a long dark passage, I am in the barn or school-room. Barns and school-rooms were in those days pretty much alike. Instead of the chatter which usually greeted me on my entering the school, all was still and silent with well-known expectation. As I opened the door, a barely perceptible whisper, a noise as of many persons breathing in their sleep, fell upon my ear; and there the schoolmaster—the executioner, the ogre to whom parents used to hand over their children for punishment—stood before me, or rather, I stood before him. The strap—the dreaded strap! a yard long, half an inch thick, with a slit in the end, curved high in the air, and, with a movement rapid as forked lightning, descended on my shoulders, over my chest, across my wrists; hissing scorching, blistering, like a tongue of fire, licking off the flesh, and boiling the very marrow in my bones.

On leaving school some three hours after undeserved punishment and degradation, poor Bob, whose own ill-treatment was still fresh in his memory, came and presented me with a nest of young blackbirds, which he had left at a shop near the school. Such were the only means he had of saying that he sympathised with me as I had often done with him under similar circumstances.

There are freshness of incident in this chapter and a certain felicity of variety—touches both of nature and art. The "Flight to School" is a picture likely to live in the memory. Other chapters of simpler construction are more remarkable for quaint, Saxon directness of expression. In chapters entitled the "Picture Magazine" and the "Caricature," the author recounts experiences which have occurred to many, and have been told by few. The "Order for the Hangman" is a chapter of terror without morbidity. Few readers will have surmised the traditions of murder visibly illustrated in a country rope-maker's shed. There is material for many stories in Robert Dalby. The later chapters are the adventures of an artist, in which the varied education of a connoisseur is traced step by step, in a way that makes the book an addition to the literature of art-education.

* "Robert Dalby and his World of Troubles: being the Early Days of a Connoisseur." Chapman and Hall.

* The Heron.

ELECTRO-METALLURGY.

MR. WEIL'S IMPROVEMENTS.

THE baths employed for depositing metals upon each other are salts or metallic oxides held in alkaline, sodaic, or potassic solution, either, as is most frequently the case, by means of organic matters, such as tartaric acid, glycerine, albumen, or any other substance that will prevent the precipitation of the oxide by the fixed alkali, or by an excess of the fixed alkali itself.

The inventor effects the metallic coatings by means of these baths, according to the different cases, either with or without contact and concurrence of the zinc or metallic lead, at the ordinary temperature, or at a temperature more or less elevated.

By means of immersion in baths of similar composition we can also colour in different tints, and bronze at pleasure, the metals previously coated with copper.

Mr. Weil attaches most practical importance to his processes of bronzing and coppering iron and steel, seeing that by means of the processes now in use we not only do not obtain sufficient adherence, but we are also obliged to cover these metals previously with several coats of foreign substances, conductors of electricity, before submitting them to the action of the battery and sulphate of copper.

Iron and steel are not only coated with copper by Mr. Weil's processes with a characteristic solidity which admits of their being readily distinguished from the same metals coppered and bronzed by methods in use, but he can also vary at will the colours of them all, and produce a series of results hitherto unattainable.

He can also, by the means described, apply silver, nickel, &c., to iron and steel coppered by the processes now under consideration. They are susceptible of a great number of useful applications in the arts of the most interesting kind, which the inventor has particularly studied, but which are too numerous to be enumerated here. Articles in iron and steel thus coppered or bronzed will, if sheltered from rain, resist all atmospheric agents at the highest temperature. They equally resist water, provided they be wholly immersed in it.

For the same objects coppered by Mr. Weil's processes to equally resist rain—that is to say, the alternations of dryness and humidity, and sea water—a greater thickness is given to the coating of copper, either in the electro-bath, that is, by means of the battery and an acidulated solution of copper, or by the battery, and special solutions prepared by the inventor. The adherence of the copper to the iron and steel treated by Mr. Weil's method being complete and perfect, a supplementary thickness of a fraction of a millimètre given by the battery is fully sufficient. Articles thus treated, while faithfully reproducing the most delicate details of an ornamented work, possess all the solidity desired.

The process therefore gives at the same time a very considerable economy and marked advantages over the processes now in use.

In conclusion, the inventor quotes a fact, which, in a theoretical point of view especially, presents some interest. Mr. Weil has found that scraped copper becomes covered with an adherent coating of zinc by the contact of the metallic zinc itself, in a concentrated solution of caustic soda or potassa. This zincing takes place immediately upon warming the bath from 170° to 212° Fahr. If cold, it takes place only at the end of a variable space of time, according to the alkalinity of the bath, and then only incompletely.

Art and Handicraft.

III.—THE PRIMARY WANTS OF THE MANUFACTURER AS *A DIRECTOR.*

THE position of the manufacturer in the matter of art as applied to industrial productions, has not been an enviable one for many years past. A growing desire on the part of the public for objects of utility, in which certain acknowledged principles of taste should be visible, and the fact that those whose business it is to stand between the manufacturer and the public either could not or would not appreciate the efforts to meet the demand, or who pertinaciously denied that it existed, was not a condition of things calculated to give confidence to the producer, however enterprising, who wished in all sincerity to meet the markets of the world in the advanced condition which a better appreciation of the value of art, as an industrial adjunct, seemed to indicate. The *buyer*, to sell again—that is, the warehouseman or shopkeeper—would not buy what he considered he could not sell. Habituated for an indefinite period to have the matter pretty much in his own hands, the middle-man got it into his head that he was the true arbiter of public taste, and therefore whatever he said was good and beautiful, must be good and beautiful, and in the most perfect taste, to his customers. If, as frequently happened—and, unhappily, one has to say, continues to happen still—the customer is as ignorant of art as the shopkeeper, then all goes well for the latter, and he still buys his *uglies* and calls them *beauties*. Mrs. So-and-so, the rich merchant's wife, buys them to-day because the Hon. Mrs. Dash bought the same things yesterday, the latter having bought them because the Duchess of Fitz-Fashion bought them the day before, under the assurance of the seller that they were "positively the newest things out."

Now, all this has nothing whatever to do with the question of true art or design, and intelligent, because artistic execution; but, unhappily, it has almost everything to do with the great question of what the manufacturer shall make, and, consequently, with what the workman shall have to execute for him.

The manufacturer, then, as the *director* of the execution of the works which it is his province to supply to the public, through the shopkeeper, is often helplessly and hopelessly in the hands of the latter, so far as any advance of taste is concerned. When, however, this is not the case—and there are, happily, many instances of this kind of independence, and they are daily growing more and more numerous—the manufacturer as a producer can study the whole question for himself. He can ask himself the question which such a man as Josiah Wedgwood asked himself in the past time, and Herbert Minton and others have asked themselves in our day—"What is it that will best lead the public to better appreciation of the really beautiful and the logically tasteful in our industry?" and he will find the same answer which they found—*the gradual but sure movement out of the ugly and the tasteless.* Not by a sudden leap—not by violent changes in the habitual order of things, but by the gradual improvement of the best of the old types, until the time comes when they are improved out of sight, and their position taken by new forms, new styles; the basis of these designs being such as can be understood and appreciated from a fixed principle of action—all innovations and caprices being discarded, as inconsistent with a manufacture where science gives the structure, and art furnishes the adornment.

It need scarcely be said that the manufacturer will need all the aids which sound instruction can give him, quite as much as the workman. Indeed, if he is to keep his position as a leader and director, he will need much more: for that which the workman has to deal with in small details, the manufacturer has to look at and consider as a whole. The history of our most successful industries is full of proofs how much of the national success in trade and manufactures has arisen out of the painstaking intelligence with which individual manufacturers have developed some distinct and well-matured plan of action, which, in a few years, has changed the whole aspect of the special productions on which such a man has been engaged—the *impossible* of yesterday becoming, unmistakably, not only the *possible*, but the *actual* of to-day.

As a matter of course, there will be followers as well as leaders in the arts, as in everything else. He who aspires to lead should fit himself to do so, on the distinct and unassailable basis that he knows exactly what it is he wishes, hopes, and really intends to do, and goes about his work as if the doing was a matter quite settled, on two distinct points at least: first, that it is the right thing to do; secondly, that he means to do it.

Fig. 1.

Let the mere follower take his course, and be content to keep in it. His business is to go *after* somebody else. As only curs bark at people's heels, let such be content simply to follow when, where, and how they can. Let the fashionable dealer in conventional *uglies* lead *them*; but, above all things, let them refrain from opinions on art, or taste, or beauty. Let them stick to what will "*sell*," as the perfection of the industrial operations in which they are engaged: they can ignore art and design as much as they please; but let them not profane either by quoting them as having anything to do with their productions. Let art-schools be the pestilent heresy in manufactures that they have been to so many of these people; but let them keep away from them. Above all, let them be honest enough not to meddle with what they do not and cannot understand, and to avoid taking any share in the management of such institutions; for experience has proved that, either accidentally or wilfully, they have generally contrived to do them more harm than good. If a man cannot appreciate a principle, he had better not meddle with it. He may deny its existence, and be useful even in his opposition, if the principle is true. Affected belief is the worst form of infidelity in science and art, as even in higher things.

George Wallis

Fig. 2.

Fig. 3.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

NIELLO WORK.

Several attempts have been made of late to revive the curious and beautiful art of niello, once so popular in Italy and other countries. At the Exhibition of 1862 several specimens were shown, which possessed much excellence, although very far from equalling in artistic feeling the productions of France and Italy. There are, however, many reasons why we cannot produce, at the present day, niellos comparable to those with which Finiguerra has enriched the gallery Degli Uffizi at Florence. We must be satisfied with imitations more or less successful, as articles of trade. In this respect Russia holds the first rank. The town of Toula is the centre of a very interesting and important manufacture of niellos in silver, and particularly in platinum, consisting principally of snuff-boxes, which enjoy a well-merited reputation.

Niello is the name given, in Italy, to a compound of silver, lead, sulphur, and borax, melted together. When cold and hardened, it is carefully washed and reduced to grains of the size of the finest millet-seed. In this state it is applied to a plate of engraved metal, which fusion causes to flow into and fill up the lines made by the graver. The plate is then withdrawn from the furnace, and when the incrusting matter has become solid the plate is scraped, so as to leave in the lines the quantity of niello sufficient to fill them. When the surface of the plate is polished the design has the appearance of having been drawn with a pen. This work, preferably executed on silver, has a very pleasing effect, and is called *Lavoro di Niello.*

The origin of the art of niello, about the year 1460, is attributed to Maso Finiguerra, a goldsmith of Florence. He engraved upon silver plates not only ornamental designs, but historical and mythological scenes, which became really pictures when nielloed. These works contained the germ of the art of chalcography, to which, in fact, it subsequently gave birth.

After putting the last touches to his engravings, Finiguerra was in the habit of taking an impression with very fine clay. Upon this mould he afterwards poured liquid sulphur, which gave him an exact copy of the original plate. He then rubbed the sulphur-cast with a mixture of soot and oil, in order to ascertain the effect of his work. A sheet of paper—or as others say, a wet rag—having accidentally fallen upon this cast, it received an accurate impression of it, which gave the artist the idea of multiplying these copies, and thus the art of engraving on metal was created.

This discovery, which spread abroad rapidly, soon cast artistic niello into the shade. It continued, however, to receive applications on a large scale; for those are real niellos, the designs engraved and incrusted in marble, which form the pavement of the choir of the Cathedral of Sienna—niellos so precious, that they are usually covered with boards to protect them, which are removed only once a year, and even that rare exposure is too much for their complete preservation.

Niello was known to the ancients, as is proved by the name the Greeks bestowed upon it. The Romans called it *Nigellum.* The art was also practised during the Middle Ages. In the manuscript of Heraclius, written about the eighth century, may be found a recipe, probably of Byzantine origin, for preparing niello. The treatise

on the arts, by the monk Theophilus, translated by Mr. Hendrie, contains another recipe.

Very remarkable works in niello are scattered through most of the public and private collections of Europe. The museums of London, Paris, Madrid, and Turin, contain panoplies of rare excellence in this kind of work. But it was in Italy especially, at the date of the Renaissance, that niello took a character which raised a process more or less mechanical to the high dignity of an art.

Several rings ornamented with niello work have been discovered in Lancashire, bearing the following inscription in Anglo-Saxon:—"I belong to Æthred—Eanred made me." Other niellos, of English and foreign fabrication, are celebrated—among others, an altar of oriental jasper, with ornaments in niello of silver gilt, of the thirteenth century. After forming a portion of the treasure of the abbey of Avelscana, it became the property of the Rev. Canon Rock.

Niello work is well deserving the attention of our skilled artisans, especially those who handle the graver. There are numerous branches of trade to which it is applicable—among others, to the embellishment of silver watch-cases, to silver snuff-boxes, caskets, presentation plate, &c.

Our woodcuts (1, 2) are copied from a niello-worked box of the sixteenth century. Fig. 3 is a beautiful specimen of arabesque work, in which the interlacings are extremely complicated, without producing confusion. It is a pattern of good taste, well deserving imitation.

Things Talked About.

THE administrators of the Peabody Fund have given an account of their stewardship. It is proverbially difficult to please everybody; and it is not likely that the mode in which they are employing so large a fund as £160,000 will escape cavil. Some dissatisfied claimants and projectors there are sure to be; but we think that the general opinion is that the trustees have acted wisely in selecting the erection of improved dwellings for the working classes as the object to which the splendid donation should be devoted. Every year makes the claims of the working classes to comfortable homes, near the places where they earn their bread, more urgent; and Mr. Peabody himself, we believe, would hardly wish that his benevolence should have another result. The trustees have already expended about £85,000, and for that they have to show the buildings at Spitalfields, where 200 persons—say forty or fifty families—are well housed; large plots of land for similar erections at Chelsea, Bermondsey, Shadwell; and a magnificent block of buildings, divided into 155 tenements, at Islington. The tenants belong strictly to the working classes; and it is pleasant to note that their health is far above the average.

A society has just been established in the Potteries, which offers an attractive prospectus. It will be well, however, if the plan be carefully examined before acceptance; there have been many failures in the same direction. The project consists of an Emigration and Building Society, the objects of which are defined to be "the removal of surplus labour by emigration, and the erection of cottage houses on freehold land at home." There is nothing novel in either object; but emigration schemes—notably the Wisconsin project, by which so many were deluded some eighteen years ago—have so frequently failed, that, as we have said, caution is necessary. However, this scheme appears to be more feasible, as no settlement of emigrants is intended, but only allotments of £20, for emigration purposes—the recipient to choose his own destination. The subscription is sixpence a week, and the annual allotment for building purposes to forty members is to be £10 each. The prospectus appears to require re-consideration, and an examination of the balance-sheets of the best conducted freehold land and building societies would be of service.

A very interesting movement is being made to obtain for the north of London a museum somewhat similar in character to the South Kensington Exhibition, though, of course, on a smaller scale. The provisional committee suggest that the proposed museum should include novel and practical applications of science, examples of the arts of design and decoration, technical and inventive industry, and illustrations of domestic and sanitary economy for the furtherance of health and comfort, with a view of aiding working men and their families to "turn to the best account the common things of every-day life." Need we say that we wish well to the undertaking?

How frequently we read of fatal accidents to men employed at railway stations and about railway work! Some are no doubt due to the carelessness of the men themselves, but we cannot help thinking that better precautions should be enforced by the managers of railway companies. Plate-layers, shunters, and porters are frequent victims; and one form of accident—that entailed by the train starting before the porter who couples the engine and carriages has time to quit the lines—has been several times reported lately. It is scarcely possible to visit a junction station without seeing great recklessness in this matter, a recklessness which strict regulations would restrain.

The subject of railway servants suggests the case of the men employed on the London and Blackwall line, now transferred to the Great Eastern Company. The men, many of them very old and faithful servants, have been discharged at a moment's notice. Surely some compensation for the sudden loss of the means of livelihood might be afforded. It is a bad time of the year for poor men to be out of work.

Greater consideration has been shown by the London and North-Western Company, which has built and opened a large sewing factory at Crewe, where the unemployed women of that railway town may find remunerative employment.

The South Staffordshire iron trade is dull. Very much of the future of the trade, it is said, depends upon the demand from America. We have little fear that that demand will materially slacken.

Iron and coal are so nearly allied, that we turn to notice the revival, in the columns of our clever and popular contemporary, the *Daily Telegraph*, of the old controversy as to the probable duration of our native supply of coal. Whether we ought to stint ourselves for the sake of posterity, or whether we should leave posterity to take care of itself, trusting to the yet undeveloped resources of science, is a moot question in ethics, which we shall not now attempt to argue. But one or two facts are worth noting. Eighty-five millions of tons are annually raised in Great Britain, and the demand is increasing; so, too, is the price. Yet we have been told that the South Wales coal-fields alone could supply the country for the next four hundred years. That statement was contradicted by Sir William Armstrong, a great authority, who limited the supply from all our coal-fields to 212 years; and now other scientific investigators tell us that in less than half that period there will not be a scuttleful left, so that our grandchildren may see the time when England will be fireless.

The London velvet weavers, who earn no more on the average than 11s. a week (little enough that), have lately had to submit to a reduction of wages, to the extent of 12½ per cent. That seems to be the last straw that breaks the camel's back.

A workman employed at the Vauxhall Glass-works, at Liverpool, has been brought before the magistrates, charged with absenting himself from his work without permission. He had thereby rendered himself liable, under the 4th George IV., to six months' imprisonment. He was, however, in consideration of his good character, and an expression of sincere regret, discharged with a reprimand, upon giving his recognisances to attend to his work. Thousands of workmen, we venture to say, know nothing of the existence of such a law. It is rarely put into operation, but it is as well its provisions should be known.

The clothiers' assistants in certain busy metropolitan neighbourhoods are very reasonably getting tired of Sunday work. Shops for the sale of clothing are kept open all day; and the necessity of a change of system was well enforced at a meeting held last week at the Lambeth Baths. We wish their efforts at emancipation every success.

Earl Dudley has given £5,000 towards the purchase of the arboretum at Worcester—a fine pleasure-garden—in order that it may become the property of the city, for the recreation of the inhabitants.

Mr. Nicholas Hood, of Hetton Hall, Durham—one of the earliest employers and friends of George Stephenson, an improver of the locomotive engine, and a staunch friend of the working man—recently died, at the ripe age of seventy-one.

The interesting papers read before the late congress at Sheffield, which were fully published in the journals at the time, are now being supplemented in a very instructive and agreeable manner. One of the Sheffield journals (the *Independent*) recently offered £24 for essays by working men, on subjects rising out of the congressional discussions. The results are now showing themselves, highly favourable to the industrial order. Considerable numbers have competed, and some excellent essays have appeared. Two first prizes have been awarded to a grinder, who took part in and was complimented at the Association's last meeting. Two second prizes have been awarded, one to a blacksmith and one to a compositor. A principal prize has also been awarded to a compositor, while the second place has been obtained by a clerk in a file warehouse. These essays, together with the correspondence they elicit, form, indirectly, an important appendix to the society's transactions; and while, also, they arouse latent talent in some of our better-class artisans, the essays place before the public information which would be otherwise difficult to obtain. The next meeting of the Social Science Association will be held in Manchester. We trust the working classes of that city will have similar inducements and opportunities for displaying their abilities and informing the public mind, to those of which the Sheffield artisans are now availing themselves.

General Information.

WAGES.

THE MINERS OF NORTH STAFFORDSHIRE.—A recent application for an increase of wages from the miners in the employ of Earl Granville, was brought before the quarterly meeting of the North Staffordshire Coal and Ironmasters' Association at St ke-on-Trent on Thursday, the 4th inst., when it was decided, on account of the improved state of the coal market, to advance the wages of colliers and ironstone miners throughout the district from 3s. 6d. to 3s. 9d. a day.

CHAIRMAKERS.—A meeting of masters and journeymen in the above trade was held on the 9th inst. at the Albion Hall, London Wall, to discuss the question of a rise of ten per cent. on the present rate of wages required by the operatives. Delegates representing 900 men were present, and about thirty of the leading employers in the trade. Mr. M'Donald, an operative, took the chair. He detailed the reasons which had induced the men to request the advance, and hoped the employers would be prepared as a body to concede the advance by the first week in February. Mr. Lewis, an operative, desired to assure the employers they were actuated by no aggressive feeling towards them, and were open to receive any fair and reasonable proposal. Their desire was to meet the employers in the most liberal spirit; but there must be a rise in wages, the present rate not being sufficiently remunerative for a skilled workman. Several other workmen having spoken to the same effect, Mr. T. Turner, on the part of the employers, said he attended the meeting with much pleasure, to discuss the matter in an amicable spirit. He and other employers were present that evening to hear from the men themselves a statement of their grievances; and although they were not prepared to give a definite reply that evening, they were willing to give a promise that a general meeting of the employers should be very shortly held, when the whole question should be fully discussed, with an anxious desire, if possible, to meet the wishes of the men. He must remind the meeting, however, that the large wholesale houses in the trade would have a voice in the matter, and he believed they were generally averse to the movement. The discussion was continued for a considerable time in a most friendly spirit, and it was ultimately resolved by the employers that they would obtain the opinion of the trade between the present time and the first Tuesday in February, and communicate its decision to the delegates of the workmen on that date. Although the men seemed determined to adhere to their demand of ten per cent. advance, there was a general wish to avoid a strike.

CLUBS.

It is gratifying to be able to report that since the establishing of the Netting Hill Workmen's Club, by that zealous and philanthropic lady, Mrs. Bayly, wife of Captain Bayly, of Barnet, it has produced the most gratifying results, both as regards commercial success and social improvement. The hall and reading-rooms are always open to the workmen and youths residing in or about the neighbourhood, who repair there of an evening and enjoy themselves with innocent and wholesome recreation and amusement. The library is well supplied with periodical and magazine literature, as well as with works of a more philosophical and deeper import, whilst "Penny Readings," given each Friday evening, contribute greatly to the improvement and instruction of those attending. Nor are lectures wanting to fill up the deeply interesting programme of this valuable institution. On Tuesday, Jan. 9, a most interesting and valuable lecture was delivered in St. James's School-room, in connection with the club, by Mr. Gale, the inventor, on the means by which powder is rendered non-explosive. The lecture was well attended, and was presided over by Mr. W. Saunders, of Plymouth, who was accompanied on the platform by the lecturer, Mr. Gale, Mr. Parfit, Captain Bayly, and other friends. Mr. Saunders having, in a neat, appropriate speech, introduced Mr. Gale to the audience, that gentleman, who is totally blind, gave a lucid explanation of the circumstances under which he accidentally discovered the ingredient which, if mixed with powder, would render it completely harmless and non-explosive. When a youth he was very fond of making up and of letting off fireworks, but his pocket-money not being sufficient to purchase the necessary amount of powder required by him, he, in his efforts to cause the powder to go as far as possible, discovered that the substance now used by him completely annihilated the explosive power of the powder. Mr. Gale then made some deeply interesting experiments of the same nature and character as he had done before the Prince and Princess of Wales, during which he applied heat and light to small masses of powder without procuring the least explosive effect. But what renders this discovery the more invaluable is, that after having been separated from the substance which for the time being rendered it non-explosive, the powder is found to retain all its explosive properties, and the same strength it had previously possessed. The lecture was of the most interesting character, and afforded a large amount of gratification to all present. In connection with the club are several local clergymen who extend to it their patronage, and occasionally lec-

ture or read there, among whom is the respected incumbent of St. Marks, Rev. E. Kendall, M.A.; Rev. W. Allen, M.A.; Rev. Mr. Dunn, &c. The refreshment department, under the superintendence of Mr. Odell, the manager, is well supplied, and affords comfortable and cheap accommodation.

THE annual general meeting of the members of All Souls' Working Men's Club and Institute was held at the club-house, 73, Great Titchfield Street, on Monday evening last, and was adjourned to the 22nd instant. The Rev. E. R. Eardley Wilmot occupied the chair. Hodgson Pratt, Esq., W. Thackeray Marriott, Esq., Mr. Pocklington, visiting agent, from the Working Men's Club and Institute Union, and Mr. Borrow, honorary secretary of the Camden Town Club, were also present.

WORKING MEN'S CLUB AND INSTITUTE UNION.—The monthly tea-meeting of secretaries of metropolitan clubs held by the above society took place on the 4th inst., and gave rise, as usual, to a very useful and interesting discussion. The chair was taken by the Rev. H. Solly, and besides various representatives of Working Men's Clubs, Edward Hall, Esq., and Mr. John Bainbridge, members of the council of the Union, were present. The first point discussed was, "What are the Indispensable Elements of Success in a Working Men's Club and Institute?" The advantage of visits from persons in a higher social position, and having more leisure time, culture, and acquaintance with business than working men generally possess, was unanimously endorsed. Reference was made by three or four speakers to clubs with which they had been acquainted or connected, where the evils from which clubs so often suffer had been—or, in other cases, evidently might have been—avoided, if one or two gentlemen had interested themselves in the affairs of the club. As, however, the discussion was chiefly a development and confirmation of the arguments advanced in the letter which is given in another part of this journal, we pass on to observe that the next essential element of success referred to was an active committee, the members of which not only provide suitable entertainments, classes, &c., but take it in turns to play the host, and make the members comfortable and happy. A third requisite mentioned, of course, was good premises, in a suitable locality; and a fourth was efficient attention to the refreshment department. Many valuable remarks were made on all these points, which we propose embodying in a series of short papers under their respective heads. These monthly conferences have always been useful and pleasant, whether attended by many or few; but of course a larger amount of experience would be gained if each metropolitan club committee would take care that some one of its members attended on each occasion. It is not necessary that such member should be the secretary, or even on the committee. The meetings are quite informal and unaffinial. The Council of the Union offer a hospitable welcome, and in return simply invite the communication of such facts and arguments as may be useful to the persons present, and, through their own machinery, to clubs generally. Thus, no formal appointment of a delegate or representative from the club is necessary. All that is required is that some member of each club, possessing a reasonable amount of experience in connection either with the club he comes from, or any other, should present himself (in a cheerful frame of mind if possible—if not, at least willing to be cheered), about half-past six p.m. at the office of the Union, 150, Strand, on the night fixed for the meeting, bringing an introduction from the secretary or committee, should he not be the one, or belong to the other. The talking part of the business generally commences about half-past seven; but a late cup of tea (perhaps of that quality usually connected with the head of the family), will doubtless be attainable for any deserving, but tardy clubbist, as late as eight o'clock. Nobody, however, had better count on such indulgence—though everybody is better late than never—but let us have the pleasure of beholding them in time for a suitable meal all together. The next meeting will be held on Thursday, Feb. 1. We would strongly recommend our friends in other parts of the country, wherever there are a few clubs within a "speaking distance" of each other, to institute similar pleasant and profitable *ré-unions* to those held in London. The South Staffordshire Adult Education Society has adopted a comprehensive and admirable system of periodical meetings for the promoters and managers of clubs, institutes, and night schools. The Southern Counties Adult Education Society, the District Union of Clubs formed recently at Winchester, Newcastle, and Manchester, as well as that which we hope soon to see formed for clubs in Yorkshire, under the presidency of Lord Houghton, might all adopt measures for bringing representatives of clubs and institutes together for a social meeting and profitable confab, once a month, or once a quarter, according to the facilities of travelling in the district.

WE beg the attention of all Committees and Secretaries of Clubs to the forms to be filled in with various particulars, which have been forwarded to every club with which we are acquainted in the kingdom, and earnestly request that those who have not yet returned them will kindly do so on or before the 15th, or as soon after as may be convenient. The Council are desirous it should be clearly understood that the information requested is asked for simply to promote the success of the movement generally, and the prosperity of individual clubs, which depends to so great an extent on learning the experience of each other, and mutually gaining a knowledge of what is being done elsewhere. The Union has always disclaimed the slightest idea of exercising any kind of control over Working Men's Clubs and Institutes, whether affiliated to it or not. It has neither the right nor the desire to interfere in any way with their management. We want only to render them all as much service as may be in our power, and with that view invite the cordial co-operation of their managers and promoters in every rank and district.

CHESS COMPETITION.

THE Council of the "Working Men's Club and Institute Union" having offered a prize, of the value of Two Guineas, to the successful competitors at a chess tournament, to take place some evening in the course of the month of February, secretaries of clubs are requested to send in the names of intending competitors to the office, 150, Strand, on or before the 31st of January. In accordance with the terms previously announced, they are also requested to give to those members of their clubs who intend competing certificates that they have been in membership for not less than six months. The competitors will be divided into parties, to play each one game, the winners afterwards to compete successively with each other.

EMIGRATION.

EMIGRATION FROM THE CLYDE.—During the year ending the 31st December, 1865, there have been 15,277 emigrants dispatched from the Clyde, being 4,888 more than the number who sailed in 1864. Of these, 10,033 have gone to the United States, 2,582 to Canada, 1,510 to Queensland, 930 to New Zealand, and 217 to various other parts of the world.

Correspondence.

**** We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE WORKING CLASSES.

To the Editor of the WORKING MAN.

SIR,—It is with pleasure that I take this opportunity of thanking you for the production of such a journal as the WORKING MAN, destined to be the medium for the thoughts of the working class to appear before the public at large—to be that intellectual field where those that may have something to say worth listening to will always be sure of finding a space for their words.

It has been truly said that this is the age of the working man. The one thing that has hitherto been wrong (which I hope and believe your paper will help to set right), is that we have not in the main been listening to the voices of the working class, but—as in one case you have defined it to a nicety—the frothy utterances of noisy demagogues: not that I would include all those working men who have proved themselves able and clear speakers and thinkers; far from it. Still, I unhesitatingly affirm that the majority of those who have assumed to be the leaders of the trades, have lamentably failed in introducing a better and a higher state of things than those wherewith they started.

We have also had another and a very numerous class—namely, those men who, seeing that the workpeople were becoming a vast moving power in society, have put themselves forward to be the exponents of our thoughts and aspirations, claiming to represent us, while, in fact, they have, and still continue to misrepresent our wish, actions, and intentions. The correspondent in your first number gives a case in point. Again, some have come forward, like the poet Cowper describes—

"Whose thoughts contemplative have dwelt
In situations that they never felt—
Start up sagacious, cover'd with the dust
Of dreaming study and pedantic rust,
And prate and preach about what others prove."

Some have thought to patronise; there they have summarily failed: we are too shy of anything that savours of patronage to be thus caught. It is as well that it is so; we are not babies, but grown up men and women: we must work our own redemption if we wish it to be enduring. Hence, I must again repeat that I look upon your paper as one of the best steps for the advancement of the working class that has ever been proposed or carried out.

If my fellow-workmen will take this to heart, they can greatly add to its usefulness by extending its circulation. This can easily be done. I will give an example. I spoke to several of my own trade (stonemasons), and asked them if they were not going to buy the WORKING MAN. This led them to ask me for particulars, which I gave, and they promised to buy the paper. Well, if every one of those who believe in the aim of the paper will try to get a mate to purchase it likewise, that would double its sale at once.

In conclusion, Mr. Editor, I would fain press upon your notice one thing—viz., that, though it is well known that we have many vices and follies, it is as well known that we have many noble natures. Knowing that, I hope you will deal tenderly with the men and women, while you give no quarter to vice, follies, and crime prevalent, remembering that we are not all intellectual thinkers, but that there is a vast amount of dense ignorance amongst us. You will, while recognising this, strive to find a way to lift our fellow-workmen and women into the realms of reason and knowledge. To make your work effectual you must be supported by the intellect of the working class. I am, sir, &c.,

L. J. H.

27, Brixham Terrace, Wandsworth Road, Lambeth, S.

SUNDAY EVENINGS FOR THE PEOPLE.

To the Editor of the WORKING MAN.

SIR,—I noticed the other day in the *Times* an advertisement headed as above. The purport of the advertisement is, that from Sunday evening Jan. 7, to Sunday evening Feb. 11, public discourses will be delivered in St. Martin's Hall, that selections of sacred music will be played each evening, and that the prices of admission (by ticket) vary from 2s. 6d. to 3d. Back seats free.

The lectures are all of a secular character, and will be delivered by men eminently qualified for the task—such, for instance, as Professor Huxley, Sir John Bowring, Dr. Carpenter, &c. There can hardly be two opinions as to the popularity which will attend these lectures, and a second series will probably follow the first. But, sir, is it very Pharisaical to ask, "Is it right such lectures should be delivered on Sunday evenings?" The time when they are to commence is 7 o'clock, or during the time Divine service is celebrated throughout the length and breadth of the land, which somewhat jars on my perhaps over-sensitive mind. Moreover, the scheme is an affair of cash, after all, although no money be taken on the Sunday. And as to sacred music accompanying secular lectures, that, in plain language, is but a subterfuge. It is noticeable that the name of no reverend gentleman appears in the programme. Some clergymen might vary the entertainment by giving a "Reading" from the Poets, but I hardly think any one would deem it consistent with his calling to do so. In fact, there is no need that these discourses should take place on Sunday at all.

The above, sir, are my honest opinions. They may not be popular, and many of your readers may take exception to them. This is, however, a question which eminently concerns working men, and therefore a fit topic for discussion in your columns. I am, sir, your obedient servant,

Jan. 6, 1866. A BOOKSELLER'S ASSISTANT.

ARTISTIC WORKMEN.

To the Editor of the WORKING MAN.

SIR,—Will you allow me, as a working man, to say a few words respecting the unartistic character of the generality of my class? In your article on "Trades Unions: their Limited Sphere," you say, "A workman should be a thinker and an artist." I think there are very few skilled workmen but really do take a pride in their work, and would do it in a far more artistic manner if they were allowed; but they are not. I am a moulder, and in the shops where I have worked I have invariably found that it is not so much the artist that was wanted as mere strength, allied with a little intelligence, of course. That man who could do the most work, just sufficiently good enough to suit the requirements, was valued as the best workman. The foreman will give a man a certain job to do, and will, perhaps, tell him how to do it, and he is expected to do it that way. The workman may suggest that the addition of such a thing would be a great advantage to him; but the chances are that he will be told, sharply, that the job has been done before without the aid of such things, and must be done again. I am quite satisfied that, in five shops out of every ten—ay, five out of six, it is not quality but quantity that is required; "rough and ready" is the word. The master urges the foreman for more work, and the foreman stirs up the men. Working under such influences as these, in a shop never unimpregnated with sulphur and smoke, sweltering in summer, half-frozen in winter, how is it possible, Mr. Editor, that men should take such an interest in their work as you and Mr. Ruskin wish? and, in many instances, at work from six in the morning until ten, eleven, and twelve at night. MOULDER.

WHAT BECAME OF THE PIGS?

To the Editor of the WORKING MAN.

SIR,—Having read the very interesting "Story of a Wood-Carver at St. Paul's," in your first number of the WORKING MAN, I feel, as no doubt many of your readers feel, that I should like to know what became of the carved sow and pigs, and if any trace of them now remains.

Yours respectfully, L.

4, Buckland Street, New North Road,
January 8, 1866.

TO CORRESPONDENTS.

THE BIRMINGHAM EXHIBITION.—We have received other letters disapproving the conduct of the Executive of the above Exhibition. The communication in No. 2 will, no doubt, suffice to draw forth some explanation of the matters referred to.

E. WILKINSON.—We are glad to hear that Messrs. Holmes, carriage manufacturers, of Derby, have kindly and unconditionally given their workmen the Saturday half-holiday.

G. S., who is constructing a model church with cork, desires to know what is the best material for joining the several pieces together. He has used sealing-wax, but does not like its appearance. A solution of shellac, white or brown, in methylated spirits of wine, of the consistence of cream, will answer the purpose as well as anything.

W. H. W. submits the following chemical query:—"The compound called aqua-regia is a mixture of nitric and hydrochloric acids. Some books say that it is merely a solution of chlorine (consequently its power of dissolving gold), and give its change thus:—'The hydrogen of the hydrochloric acid combines with the oxygen of the nitric acid, and the chlorine remains in solution.' Here is where I am puzzled. If that be the case, where does the nitrogen of the nitric acid go to?" The gold is attacked by the nascent chlorine. The nitrogen, with some oxygen in combination, passes off in a gaseous state.

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A Weekly Record of Social and Industrial Progress.

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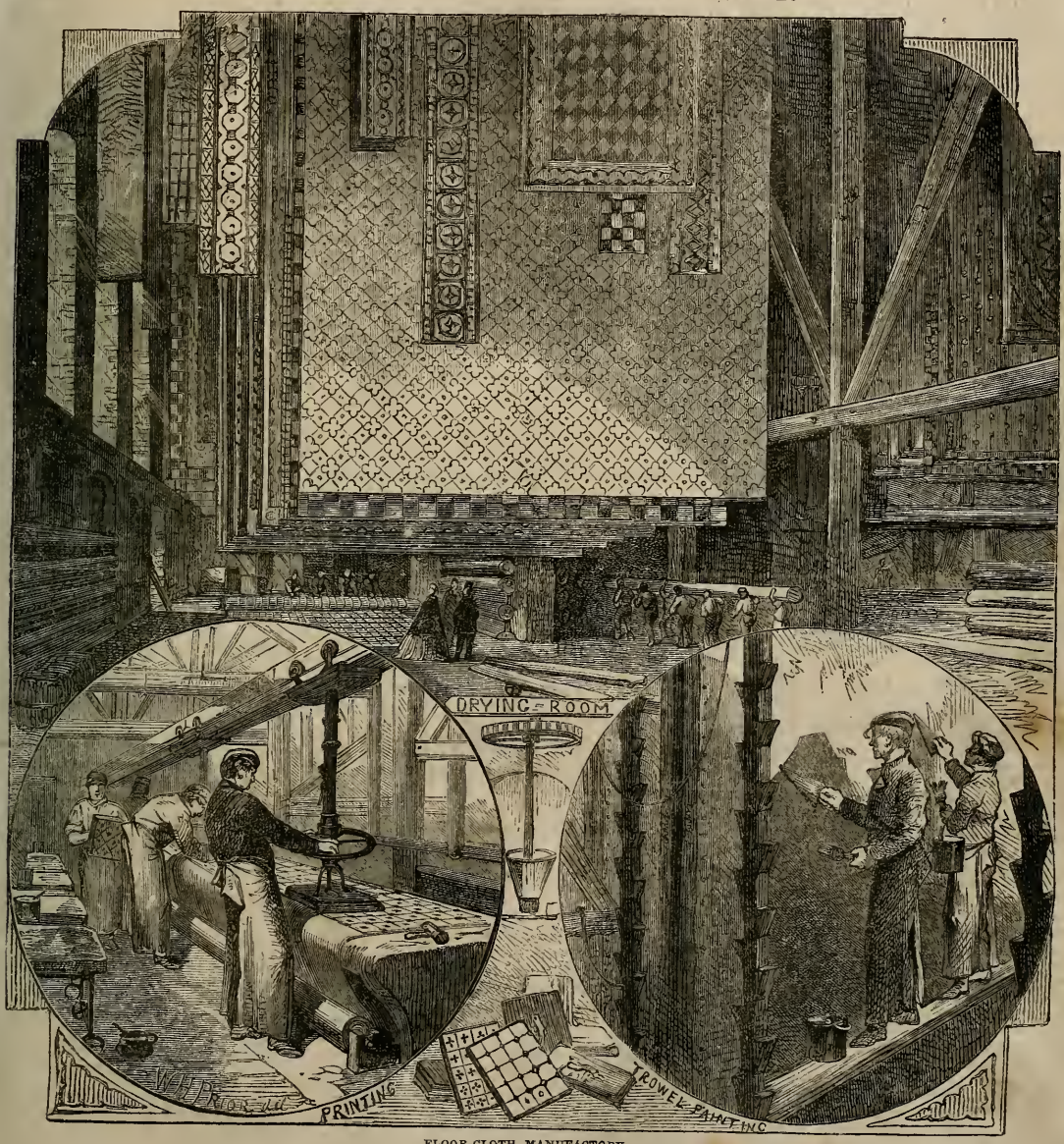
[REGISTERED FOR TRANSMISSION ABROAD.

VOL. I.—No. 4.] SATURDAY, JANUARY 27, 1866. {PRICE 2D. {STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.



FLOOR-CLOTH MANUFACTORY.

Floor-Cloth Manufacture.

THE floor-cloth manufacture is a branch of industry almost exclusively English in its origin and development. Like that of carpets, it is of comparatively recent growth, and has now become a very large branch of trade. The quantity exported annually to foreign countries amounts to nearly half a million square yards, and is constantly increasing under the facilities afforded by free trade.

In most civilised countries, carpeting and matting of various kinds supply the place in household appliances which floor-cloth occupies in this country; but as this fabric becomes better known, its peculiar qualities, which render it more economical and useful, will doubtless cause it in due time to supersede most of the other fabrics which are now substituted for it.

Floor-cloth—or, as it is sometimes called, oil-

cloth—is a stout kind of canvas, painted on both sides in oil-colour. The canvas is a special manufacture, carried on principally at Dundee, in Scotland. The looms for weaving it are specially contrived for that purpose, as a floor-cloth, whatever be its size, must have no seam. The material is chiefly flax. The canvas or *cloth* has about sixteen or eighteen threads to the inch, and weighs about twenty-one ounces to the square yard.

A floor-cloth manufactory must necessarily be lofty, and occupy a large space of ground. One of the most eminent is that of Messrs. Smith and Baber, at Knightsbridge, London. The processes carried on at that establishment form the subject of our present description.

The canvas is shipped from Dundee in bales weighing about five cwt. each; these, upon their arrival at the factory, are unpacked, and spread out evenly upon the floor of the drying-room, and afterwards wound upon a wooden roller of about five inches in diameter, and rather longer than the width of the canvas. The roller and canvas are then conveyed to the frame room, and placed in position on the frame to which the canvas is to be fastened. This frame is constructed of stout oaken beams, and so contrived as to admit of the canvas being stretched upon it perfectly even. The arrangements adopted for this purpose are simple and ingenious. This stretching or framing of the canvas is, perhaps, the most delicate and important part of the series of operations.

The first operation to which the canvas is submitted is the *priming*. A weak solution of glue or *size* is applied with a brush to the back of the canvas, which, while still wet, is rubbed with a flat piece of pumice-stone, to smoothe down any asperities the surface of the canvas may present. The object of this "priming" is to prevent the paint from penetrating too deeply into the canvas, which would cause the floor-cloth to be brittle, and not sufficiently pliable.

Painting floor-cloth is very similar to house-painting. The materials and tools are the same, with the addition of a *trowel*, with which the paint, too thick to be worked with a brush, is spread evenly over the surface of the canvas. The canvas is painted on both sides, but less paint is applied to the back than to the upper surface, and no pattern is imprinted on it. As *driers* are not mixed with the paint, it takes a long time to dry—as much as ten days or a fortnight. The first application of the paint more resembles plastering than painting. Taking in his left hand a strong thick brush charged with paint, the workman daubs it on to the canvas in patches, and then, with the trowel, held in his right hand (see engraving), he spreads the paint evenly over the surface, contriving to work it into the interstices of the canvas, and thus to produce a tolerably even surface.

While the paint on the back is drying, the face of the canvas undergoes a preliminary preparation. The surface is covered with weak size, and rubbed down with pumice-stone, so as to render the canvas smooth, and fit to receive the paint. It is then left until the back is finished. When the first coating of paint applied to the back is dry, a second is laid on in thinner paint with a brush, and this finishes the back.

The *face* of the canvas now receives an application of "trowel colour," similar to that which was applied to the back, and is then allowed to dry. The unevennesses of surface are smoothed down with pumice-stone, then a second and a third coating of trowel colour are applied, and the pumicing repeated when each coating has become dry, after which the canvas receives a "brush colour." These several operations extend over a period varying from eight to twelve weeks, and the greatest care is taken that they are well performed, so as to secure smoothness of surface and pliability to the floor-cloth.

The next operation is that of printing the pattern, which by most persons will be regarded as possessing the greatest interest. During the previous preparations the canvas has been maintained in a vertical position; it is now laid horizontally on a long table. The method of printing is not stencilling, as is generally supposed, but block printing, as many blocks being employed as there are colours. The blocks are all exactly the same size, about fifteen inches square, and rectangular. They are formed of two thicknesses of pine wood, and one of pear tree, joined together so that the grain of one crosses that of the adjoining one, to prevent distortion.

A pattern may consist of any number of colours, but seldom more than ten or twelve are applied. Of course, the greater the number of colours the more complicated and difficult the printing, and the more expensive the floor-cloth becomes.

The cutting of the pattern on the blocks is a work of great nicety, for unless perfect register be secured the design will be distorted. The cutting is similar to that adopted in ordinary wood engraving, the design being formed in the flat surface of the block, while the white or blank portions are cut away. Sometimes the pattern is formed of copper, fastened on to the surface of the blocks. The pattern must not be left flat or smooth on the surface, else it would not take up or deliver the paint equally. The wood or copper is divided and broken up into ridges, which form the pattern in spots, as may be seen upon closely examining a piece of floor-cloth.

In the printing process each colour is spread out on a flannel pad or cushion, measuring about three feet by two and a half feet. The workman dips a brush in the proper colour, and lays a good supply of it upon the cushion; a printer then takes up one of the blocks and dabs it down on the cushion, when a proper supply of paint adheres to the pattern on the block, which he then applies to the prepared canvas lying spread out upon the table; then, with a heavy hammer, he drives the block down close upon the canvas, to which the paint becomes transferred. An improvement upon this method has, however, been introduced of late years, by which the pressure on the block is given by a travelling screw-press (see engraving), which relieves the workman of much labour, and performs the work more effectually and neatly.

The pattern-block, carefully registered, is carried over the whole surface of the canvas, until the printing with this colour is completed. The other colours are applied in a similar manner when the first is dry. The floor-cloth is then taken to the drying-room, where it is hung until fit for sale, which is not until after the lapse of six months or more.

The uses to which floor-cloth is applied are numerous. The English housewife has a horror of the sight of bare boards, and conceals them with carpeting or oilcloth; the latter is especially prized as a covering to brick and stone floors, as it serves as a protection against damp and cold. In France we find the floors of rooms of wood highly polished with beeswax, so that the surface becomes as slippery as ice, upon which it is scarcely possible for a person unaccustomed to it to walk without falling. To English taste this has a chilly, comfortless appearance. In the United States the use of floor-cloth has greatly extended of late years; it is now manufactured there on a large scale, and is gradually superseding the Indian matting, once so extensively employed there for covering the floors of kitchens, dining-rooms, &c. Floor-cloth is employed for other purposes besides carpeting—among others, as a covering for roofs, for which, being waterproof and very durable, it is well adapted.

The Working Men's Clubs and Institutes Movement.

THEIR ORIGIN AND PROGRESS.

BY THE REV. H. SOLLY.

HAVING been asked by the Editor to give a sketch, in the columns of the WORKING MAN, of the rise and progress of the present movement to promote Working Men's Clubs and Institutes, with a special description of the society called the Working Men's Club and Institute Union, I have prepared the following statement:—

The first Working Men's Institute appears to have been established by the Rev. F. W. Robertson, late incumbent of Trinity Chapel, in the year 1849; and several other places, from Cheltenham, in the south-west of England, to South Shields, in the north-east, followed the example. These institutions were endeavours to establish Mechanics' Institutes, or Literary and Scientific Institutions, under a name which would be some guarantee for the committee and members being chiefly, if not entirely, working men. But the objects were the same—viz., to secure reading-rooms, library, lectures, and classes.

In 1854 there appears to have been something more like a Social Club than any of these institutes opened in the Colonnade, Clare Market, London; but its history and nature are rather obscure. In 1858, however, an unmistakable combination of Social Club and Mechanics' Institute was established by the Rev. E. Boteler Chalmer, incumbent of St. Matthias, Salford, Manchester, in his parish, which has done a vast deal of good, and flourishes to this day. In the following year, Mrs. Bayly, authoress of "Ragged Homes, and How to Mend Them," perceiving the great wants of working men from frequent intercourse, first, with their wives, and then with themselves, opened a Workmen's Hall (which was essentially a Social Club), in Notting Hill, London. In 1860 Miss Adeline Cooper, from similar experience, established a Working Men's Club in Duck Lane, Westminster. These three last enterprises were all undertaken with little or no acquaintance on the part of the promoters with what had been done elsewhere. In like manner, from long and intimate intercourse with the working classes in various parts of England, the writer of the present article, about the same time, was coming to a conviction that a much larger amount of recreation and provision for social intercourse than Mechanics' Institutes afforded was required to meet the wants of working men, and to render them independent of the public-house. He was accordingly engaged, during 1859 and 1860, in promoting measures for these purposes in Lancaster. While conversing in the summer of 1861, with the Rev. Mr. (now Dr.) Thomas, of Brixton, on the subject, that gentleman, who had been earnestly looking in the same direction, proposed the formation of a national organisation, in the shape of a limited liability company for building Working Men's Clubs and Institutes all over the country. The writer saw with thankfulness that such an organisation, if only it were made a philanthropic society, instead of a commercial company, was the very thing required, and Mr. Thomas consenting to the change, they set to work at once to draw up a prospectus, and form the society. The invaluable support and sanction of Lord Brougham was obtained as President of the Union. Various other eminent men were successively induced to become vice-presidents, and the annual meeting of the Social Science Association held in London during the summer of 1862, afforded the means of making known the new organisation under favourable circumstances. Lord Brougham presided at a meeting for its inauguration, held at the Law Amendment Society's rooms, in Waterloo Place, on June 14, 1862, and in the following autumn rooms were taken at 150, Strand, for the office of the Union. The writer resigned the pulpit of the English Presbyterian chapel in Lancaster, to become its secretary, and its labours were fairly commenced in October of that year. Its principles and objects were thus set forth in the society's prospectus:—

"This Union is formed for the purpose of helping working men to establish Clubs and Institutes, where they can meet for conversation, business, and mental improvement, with the means of recreation and refreshment, without being dependent for these purposes upon the public-house; the Clubs, at the same time, constituting Societies for mutual helpfulness in various ways.

* * * * *

"The Council seek to carry out the objects of the Union:—

"1. By correspondence with the officers of existing Associations throughout the kingdom.

"2. By personal visits from their own officers and honorary deputations to such places as may seem to require to be visited. At these visits conferences are frequently held with the gentry, the working men, and generally with persons in the locality who may be interested in the movement.

"3. By the dissemination of pamphlets, or special papers, on subjects lying within the sphere of the Society's operations, in addition to communications to the daily and weekly press.

"4. By supplying instructions for the guidance of persons who may wish to establish Clubs or Institutes; together with rules to define their objects, and to regulate their proceedings.

"5. By grants or loans of books for Club libraries, apparatus, diagrams, &c., to Societies in membership with the Union, in cases where local circumstances may seem to call for such aid."

From October, 1862, to the present time, the society has been pursuing its course with in-

creasing support from the public, and it is to be hoped with considerable benefit to the working classes as well as to the country at large. It has been instrumental in establishing about 130 clubs in various towns and villages in England; while the papers read by the secretary at the Social Science Association's meeting at Edinburgh, in October, 1863, and the various publications of the society, as well as the attention which its labours have drawn to the subject throughout the kingdom, have led to the establishment of these clubs during the last year and a half in most of the principal towns of Scotland. From the same cause, and under the same guidance, they are springing up in Tasmania, Sydney, and Victoria in South Australia, while great interest in the movement has been expressed, and the Society's publications have been taken, by distinguished philanthropists and social reformers in Italy, Germany, Hungary, and the United States of America. The work is also going on with great rapidity and success, under the necessary modifications, in a large number of soldiers' barracks in various places at home and abroad.

A word may now be said as to the principle and plans which experience has shown to be best adapted to meet the wants and promote the welfare of working men by means of these Clubs and Institutes.

Until within the last few years, by the word "Club," working men have generally understood a Benefit, Sick, or Provident Society. The upper classes of society, on the other hand, have used it as the name of societies for social intercourse and convivial meetings. A combination of this latter idea, with the mutually helpful spirit of the former societies, best expresses the general purpose for which the name "Working Men's Clubs" has been used in this movement; while the name "Institute" is added, in many cases, to show that something of an educational character is also intended by its promoters.

But the *main primary* feature of the club was to be social intercourse and recreation. When the persons named above, and many others, were considering the privations and wants, the vices and temptations of working men, they saw the insuperable obstacles in the way of working men obtaining that social enjoyment at their own homes; they saw, moreover, that nine-tenths of the frequenters of public-houses were kept, if not drawn, there by the company they found in them, rather than by the drink. It was thought to be right and good for all men to enjoy cheerful companionship, that it was not possible for working men to visit one another, as the upper classes do; and that if they could have the means of pleasant intercourse and recreation without being obliged to pay for it by drinking, they would gladly exchange the old, extravagant, and demoralising plan for the one adopted years ago by gentlemen—that, in short, they would hail with thankfulness the establishment of Working Men's Social Clubs for company and amusement, free from the temptation or obligation to drink.

The working classes in various parts of England were therefore invited, by means of public meetings and the circulation of explanatory papers, to form themselves into societies or social clubs wherever a few of the upper class were found willing to guarantee the rent of premises, purchase or erect a suitable building, to provide furniture, fittings, and books, or otherwise to help the working men to do what they were unable to do for themselves. The first thing, generally, was to get a provisional committee, then to enrol members, agree to rules, choose officers, &c. The rooms required were, first, a good-sized room (the largest in the house), for conversation and refreshment, where men could meet their companions, have a cup of coffee, smoke their pipe round the fire if they wished it, look at a newspaper, and where, on a Saturday night, they could have a "free-and-easy," or other entertainment. Secondly, a smaller room, where those could read who wished it, where the library should be kept, where quiet games—such as chess and draughts—might be played, but where neither talking nor smoking should be allowed. Thirdly, a room for other kinds of recreation, such as bagatelle, or a skittle alley and quoit ground, in a back yard. Fourthly, a room for classes, in case any of the members wished to supply deficiencies in early education, where a discussion meeting could be held one night in the week, and an elocution, singing, history, French, or political and social economy class might be held on other evenings; also for the committee meetings. And fifthly, if possible, a room in which Friendly, Provident, and Labour Loan Societies, or Coal Clubs, &c., could hold their meetings, instead of being forced to have them at a public-house. The elocution and singing classes prepare members to entertain their mates at the "free-and-easy," Penny Readings, and other amusements; while the discussion class, if well conducted, is the best possible means for interesting thoughtful working men in the club, and for awakening the mental powers of those who have not been in the habit of either thinking or reading. The use of a large hall for occasional concerts, lectures, *conversazioni*, &c., to which members may bring their wives and daughters, is of great value, almost indispensable.

So much as to the plans adopted.

The general principles that have guided the promoters of Working Men's Clubs and Institutes are—1st. That working men should be led to do as much as possible for the undertaking themselves; to give as much, both in time and money, as it is right to afford; that they must be made to feel responsible for the good management and success of the society, and, therefore, be brought to feel that it is *their* club, and that they are their own masters there; that we have to help, but not to govern them—to *supplement*, in short, their efforts, not to *supersede* them. 2nd. That the clubs must be made places for cheerful social conversation and amusement, combined with opportunities for mental improvement, if they be desired. 3rd. That they must be made *societies* for mutual benefit and brotherhood, not merely *places of resort*, so that all may endeavour to promote the common good and general enjoyment. 4th. That they must be made, on the one hand, a refuge, for those who need it, from the temptations of the public-house, by excluding drinking, betting, and gambling; and, on the other, the means of improvement and elevation for those who seek, or will accept, such benefits, by giving a common meeting-ground in a sociable way, for working men and persons of higher culture and larger information—opportunities, in fact, to interchange ideas, either by chatting round the fire, or, in more systematic form, in the class and lecture-room.

The next question is, How far have these plans and principles succeeded in practice? The answer will be found in the case of about 180 clubs and institutes that have done, and are doing, an invaluable amount of good; of about fifty that are, at present, in a languishing or doubtful condition; and of eighteen that have been actually closed during the last two years. A glance, however, at some of these, with a brief consideration of the chief causes of their success or failure, must be reserved for another number of this Journal.

Heywood Working Men's Industrial Exhibition.

It is curious to note how frequently the successful formation of a Working Men's Club is immediately followed by an attempt on the part of the members to establish a Working Men's Industrial Exhibition. *Why* it should be so is a question which may be answered by us in a future article; but that it *is* so is a fact which admits of no doubt whatever. At least three-fifths of the Working Class Industrial Exhibitions hitherto held owe their origin, directly or indirectly, to the progress of the Working Men's Club movement, from which so many other equally interesting and important results have already sprung. At Preston, Manchester, Nottingham, Wandsworth, and elsewhere, the Industrial Exhibitions were organised and established through the exertions of the members of the Workmen's Clubs in those localities, the latest instance being that of Heywood, where an Industrial Exhibition has recently been opened by the friends and members belonging to one of the most important Working Class Clubs yet formed in this country. Lancashire and Yorkshire are the districts *par excellence* of Industrial Clubs and associations, and this is not the first time that the men of the cotton metropolis have proved themselves true to the reputation obtained by their brother toilers of the north. In Salford was formed what may be regarded as the oldest Working Men's Club yet existing; and in Heywood was established that to which we are about to allude. This latter is held in some convenient premises, situate near the Heywood Mechanics' Institute, Bamford Road, and comprising a light and well-ventilated reading-room, plentifully supplied with newspapers and periodicals of every class, together with a few books, which it is hoped will form the nucleus of a future library; a smoking-room, where dominoes, chess, and draughts are provided for the use of the frequenters, young persons not being admitted; a similar apartment for general use; a billiard-room, fitted up with two tables; and a club-room, for the use of Friendly Societies, and others desirous of ceasing to hold their meetings at the public-house. Two Friendly Associations have already availed themselves of the privilege. The number of members at present belonging to the club, which was only opened three months ago, is 320, and it is encouraging to find that with the majority of these the reading-room is more in favour than is the smoking-room or the billiard-room.

This is the institution to which the Heywood Working Men's Industrial Exhibition may look as the principal author of its existence. The Club and the Exhibition were organised by a few persevering individuals; and on New Year's Day the latter was formally opened, in the large room belonging to the Co-operative Society's Stores, situate in the Bamford Road. There was no great flourish of trumpets on the occasion; no M.P.'s adorned the platform, or lent lustre to the chair; no dignitaries, with a multitude of great staring initials at the ends of their names, came to gape and be gaped at. There was nothing of all this. The opening ceremony was presided over by a local clergyman—the rector of St. Luke's, Heywood—another minister reading the report of the committee. But the men who had helped to form the Exhibition, and the men for whose delectation it was intended, *they* were there—there was no mistake about *that*. They spread themselves over the room, criticising and examining the different objects which arrested their attention, and showing that they were determined, like sensible men that they were, to thoroughly enjoy themselves. There were plenty of things for them to look at: oil-paintings by a warper; a picture by a policeman, showing the evils of intemperance; a painting by a working shoemaker; mechanical drawings by skilled artisans; and a large number of other working-class productions, crowded the walls, which were likewise decorated with valuable paintings, photographs, and drawings, kindly lent by various gentlemen who had manifested considerable interest in the Exhibition. The articles which covered the counters and stands were of the character usually found at such Exhibitions, the number of curiosities being, however, somewhat large. There was a wonderful bed-quilt, made by Drummer Charles Richards, of Her Majesty's 80th Regiment, during his leisure hours while serving in the East Indies, the time occupied in making it being nine months, and the number of pieces 17,250. Lying upon it was an Indian waistcoat, of a very beautiful manufacture, made by a native Indian woman. There was likewise a model of a steam-ship, made by two young men, one of whom has only one arm; two small Jacquard looms, one of which was said to be the smallest Jacquard in the world, and, as such, obtained the first prize at the Paris Exhibition; a small brass double high-pressure engine, a beautiful piece of workmanship, made by a mechanic; a one-horse engine, made by two youths, one of whom was sixteen, and the other a little over twenty years of age; an ingenious toasting-fork, by which the bread was moved any distance from the fire, turned round, and taken off without removing the apparatus from its fixed position, the latter being made to fit any kind of grate; an ingeniously contrived apple-parer; and many articles of a similar nature.

Besides these, there were numerous models of buildings, curious carvings, specimens of needle-work, antiquities, microscopes, statuettes, stuffed birds, ancient coins, and other things, as the catalogues say, "too numerous to mention." Altogether, the Exhibition was one which reflected the highest credit on its promoters, who had many difficulties to contend with before their hopes appeared to have even the faintest chance of success; and we trust that when the financial report comes to be prepared, it will be found that there is a handsome balance standing to the credit of the Heywood Working Men's Club and Institute.

Art and Handicraft.

IV.—THE PRIMARY WANTS OF THE PUBLIC AS *THE NATIONAL CONSUMER.*

ARTISTIC intelligence in the demand of the public would inevitably ensure, in due course, a supply of objects suited to meet that demand. So long as the manufacturer or the shopkeeper can plead that the public only asks for and seeks the showy and meretricious, or the ponderous and the ugly, as a matter of course, neither will think it worth while to do anything to change the character of that demand; or, at least, such efforts will be very exceptional. It is, then, after all, in the education of the general public, as the natural consumer, that the solution of the problem rests: whether the union of art and handicraft is to be of such a character as to produce a really artistic result.

One thing, however, must be steadily kept in view, as it has been too frequently overlooked, or ignored altogether: this is, the fact that the manufacturer and the workman engaged in one description of art manufacture are the consumers in other departments of production. Thus, if the art knowledge and taste which they bring to bear upon their own productions be based upon true and intelligible principles, these will, when applied to their wants as consumers, ensure an intelligent demand. The art-workman, whose knowledge of drawing and the elementary principles of design enables him to produce artistic works in metal or carved wood, is a very unlikely person, if his means permit, to buy—by choice, at least—ugly earthenware, or badly-decorated japanware; or if he is compelled to buy it because his purse is scanty, or because the shopkeeper cannot obtain or will not keep for sale such articles as come up to his standard, he will, at least, take his revenge by a sharp and intelligent criticism upon his purchase, and hope for better things next time he goes to market. At all events, he does not *believe* that to be beautiful and elegant which he *knows* to be ugly and clumsy. This, alone, is a great step.

But, outside of this class of producers, there is a very large and overwhelming majority whose pursuits, or lack of all pursuit, prevents the possibility of any such knowledge being obtained, except by a process of direct instruction. If this instruction is to come as a direct and distinct branch of education, the study of drawing becomes absolutely necessary; and it must rest with the judicious master what difference he will make in the course of instruction suitable for professional purposes, to adapt it to the general public. One thing, however, is quite certain—that, to appreciate form and colour, composition and light and shadow, the combinations of varied details as a means to the making up of a complete and perfectly harmonious result as *the end*, pretty much the same course will be necessary as with the artist workman; since it must be quite clear that he who judges and he who does the work ought to stand upon, as nearly as possible, the same base line, in order to fairly understand each other.

Beyond, and often far wide of the class who care to study art as a necessary portion of modern education, there lies, probably, a much larger number of persons who have neither time—or, at least, fancy they have not—and certainly have no inclination to study the question of art in any form. Happily, this class is largely, if not entirely influenced by those around them, whom they, out of sheer laziness, are willing to believe know all about "that sort of thing." It is this class that the shopkeeper, as an arbiter of public taste, depends upon to *buy* what he makes up his mind *shall sell*. If, however, the educated portion of the public desire to see the national taste purified and advanced to a higher position, they will take care to influence this negative class by every means in their power. But to do this, they must be quite clear why certain things are bad and ugly, and why other things of the same technical class are in good taste and beautiful; and these facts they must impress on the minds of their friends who say they "don't pretend to have taste;" and also the shopkeeper, who *does* pretend to have taste, and who, in many instances, is as far off it as the most indifferent of his customers.

An illustration of the value of a principle in selecting and buying a special object may be useful. A carpet has to be purchased. The seller of carpets brings out his most striking patterns alike in form and colour. The proposed purchaser, having a very decided opinion as to what it is he wants, and intends, if possible, to get, reminds the dealer that he wants a covering for a floor; that the floor is flat, as it is used to walk upon; and that, as the carpet is not to be the only decorative object in the room, he decidedly objects to very brilliant colours, whilst, as he has no wish to suggest to his friends either stumbling-blocks or pitfalls in his floor, he thinks the objects depicted in such high relief, and with such terrible truth in foreshortening, quite out of place. The aspect of the room as regards light, the use to which the room is devoted, are considerations which can be entered into in due course, if the primary conditions are fulfilled—that, as the carpet is to cover a flat surface to be walked upon, and upon which, too, other decorative objects are to be placed, therefore it should be consistent in its ornamentation with these requirements.

It is the persistence of a certain class of persons, when buying their carpets, in absolutely "dinning" these arguments into the ears of the shopkeeper which has, at length, rendered it possible to get carpets which will meet the conditions named; and the principle applies to every other decorative object with which we clothe or adorn our persons, or furnish and decorate our houses.

Tables must be made to *sit* at, *eat* off, and in some cases *work* at. Chairs must be made to *sit in*, and not merely to *look at*. These illustrate *primary* requirements which a little common sense will enable any person to apply in their own way. The elaboration of the principles which ought to guide the design, execution, and selection of the whole circle of decorated manufactures will form the subject of subsequent articles.

GEORGE WALLIS.

THE WORK SHALL FILL THE MILLS AGAIN.

A SONG OF HOPE.

WRITTEN DURING THE DISTRESS IN LANCASHIRE.

THOUGH all is dark and dreary now,
And thousands dread the morrow,
While Labour's pale and care-worn brow
Is clouded o'er with sorrow—
Though in the cellars damp and lone
Our famish'd ones are pining,
And, with a sad, despairing moan,
Each dream of joy resigning—
Yet work shall fill the mills again,
And fact'ry bells be ringing;
From every court, and street, and lane,
The anxious toilers bringing.

Though vainly for their daily bread
The workers aye are sighing,
Or wish that with the silent dead,
Their aching forms were lying;
Yet Peace, with sunny smile, shall come
And bid each toiler treasure
The infant darlings of his home,
And sing aloud with pleasure:
While work shall fill the mills again,
And fact'ry bells be ringing;
From every court, and street, and lane,
The anxious toilers bringing.

Each soul that wears the thorny crown
Of earthly pain and trial,
Shall kneel no more in anguish down
'Neath Famine's grim denial;
But, purified, shall proudly rise
Above each old endeavour,
And learn the right to love and prize,
And from the wrong to sever:
When work shall fill the mills again,
And fact'ry bells be ringing;
From every street, and court, and lane,
The anxious toilers bringing.

No more shall passions fierce and strong
In lowly hearts be burning;
No more shall thoughts of evil throng
To dim each nobler yearning;
Nor class in hatred war with class,
E'er seeking vengeance blindly,
But strive each other to surpass
In deeds and actions kindly,
When work shall fill the mills again,
And fact'ry bells be ringing;
From every street, and court, and lane,
The anxious toilers bringing.

JOHN PLUMMER.

*Apprenticeship: its Rights and its Duties.**

IN our last number we explained the origin and nature of apprenticeship, with the duties it involves on the part both of the apprentice and the master. We now proceed to give an outline of the general law on the subject.

The common law of England does not recognise the power of an infant, or person under twenty-one years of age, to enter into a contract for any other purpose than his own benefit and advantage. But in apprenticeship, as we explained in our previous paper, the benefit is *mutual;* the apprentice learns a trade, and the person who teaches him has the advantage of his services during a certain time. As the master has no remedy at common law against the infant for breach of his part of the contract, it is customary for some relation or friend of the apprentice to join in the agreement, and to undertake on his behalf that the contract shall be faithfully performed. This rule, however, does not apply in the case of apprentices bound to freemen of the City of London; for long custom is held to have established there, that any person unmarried and above the age of fourteen who may bind himself apprentice, shall be answerable to the master for the performance of the contract in all respects, as if he were of full age when the agreement was made.

No agreement of apprenticeship is valid unless the apprentice has expressly signified his consent to the contract. It has been decided at law that in the case of a father who had bound his son, the parent and the master only signing the indentures, the latter were void.

The formal execution of indentures is essential to the validity of an apprenticeship agreement. No verbal understanding or simple agreement in writing is sufficient. And where any sum of money is paid by the one party as a condition of the contract, that sum must be correctly specified in the indentures, or they are invalid.

The master who takes an apprentice, although bound to fit him for practising his art or trade, is not compelled to teach him in his own person: he may hand him over for instruction to other persons in his employ, and even to other apprentices; all that he is engaged to do is to give the apprentice fair means of becoming proficient in the business. And where the apprentice is placed under the instruction of a foreman or other proper person, he is bound to defer to the authority of that person, as if he were the master himself.

The law does not recognise that the apprentice is in the position of a servant to the master, to do anything more than properly comes within the range of the trade or occupation specified in the indentures. Here is a frequent source of complaint and misunderstanding, especially on the part of apprentices engaged to employers in a small way of business. They find, in many cases, a multiplicity of services put upon them, and feel aggrieved when those services extend beyond the proper scope of the trade. But much of the disagreement that arises on this point, and which often proceeds to a very unpleasant length, would be avoided, if only there existed a right feeling between the apprentice and the master, and a sense of how much mutual consideration would promote their mutual interest and comfort. On the part of the apprentice, although he is not bound to do anything not included in the business itself, yet it would display a disobliging and even churlish spirit to refuse any reasonable service or assistance of which the master might stand in need. On the other hand, the master has no right to look upon his apprentice as a person placed at his disposal for any and every kind of work—to exact from him unreasonable services, and make him a general drudge.

In the event of serious disagreement between master and apprentice, either party has the right—dating as far back as an unrepealed enactment of the 5th Elizabeth, cap. 4—to apply to the magistrates in sessions, who may, on proper cause shown, punish or even discharge the apprentice; while, on the other hand, they may fine the master for his faults, or liberate the apprentice from the remainder of his service. In

* Continued from page 35.

the case of parish apprentices, two justices are empowered with equal authority by the Act 20 George II. In London, either party may summon the other before the Chamberlain of the City, who has the same powers as the magistrates in other cases. A freeman of London may turn away an apprentice for "gaming." By the Scotch law, a master may dismiss an apprentice who is "incorrigible."

The master is bound to provide his in-door apprentice with food, clothing, and necessary attendance in sickness. In the case of his refusing or neglecting to do so, he is declared guilty of misdemeanor, and may be punished by imprisonment. And where the master has covenanted to pay his out-door apprentice a weekly wage, he is not released from that payment by the incapacity of the apprentice to serve him, through accident or ill health. Nor can the master stop the wages of his apprentice for accidental damage to his property, unless he is allowed to do so by express covenant in the indenture.

A master is liable to imprisonment for assaulting his apprentice in a manner calculated to inflict permanent injury; but he is allowed by law to inflict moderate chastisement on the apprentice for decided misbehaviour.

Any apprentice whose premium does not exceed £10, if he should run away from his master, may be compelled to serve a proportionate time beyond the proper expiry of the agreement, or to make satisfaction for the loss sustained by his absence. A refusal to do either renders him liable to three months' imprisonment. In the case of his entering the service of another person during the time he may have absented himself, the master is entitled to all his earnings; and, if he should have been enticed away, may bring an action for damages against the person who misled him.

An apprentice who is bound to two or more masters, on the death of one of them, remains equally the apprentice of the survivor or survivors. He who is apprenticed to one master only, is not released from his apprenticeship by that master's death. The executors may apprentice him to another master for the remainder of his term; but they are also liable for the maintenance of the apprentice, as far as the assets in their hands will allow. The custom in the city of London is, that if the master die, the apprentice must continue the service with the widow, if she carry on the trade, otherwise the executor must put the apprentice to another master.

The master is at liberty, by the custom of London and some other places, to assign or "turn over" his apprentice to another master. This cannot legally be done, however, in any town or other place where it is not the established custom. Parish apprentices may be "turned over," with the consent of two justices of the peace.

The bankruptcy of a master operates as a complete discharge of the apprentice's indenture; and where an apprentice may have paid a premium for learning the business, the court may order such a sum to be repaid out of the estate as the circumstances of the case will allow, or may seem to require. Finally, an indenture may be determined or put an end to at any time, by the consent of all the parties to it.

Before concluding this outline of the law, we must add, that an apprentice cannot be compelled to work at his trade on the Sunday, nor to attend on that day at his master's place of business, unless in special emergencies. The Act of Parliament 29 Charles II. enacts that "no tradesman, artificer, workman, labourer, or other person whatsoever, shall do or exercise any worldly labour, business, or work, of their ordinary callings, upon the Lord's day, or any part thereof, works of necessity and charity only excepted." Under this act, it has been decided by the House of Lords, on appeal, that a barber's apprentice, who was bound by his indentures "not to absent himself from his master's business, holiday or week-day, without leave," could not be lawfully required to attend at his master's shop on Sunday mornings.

SUNDAY POSTAL DELIVERY.—It has been suggested that the postal authorities should insert a rule into their "Postal Guide," to the effect that no letters will be delivered on Sundays, unless the words "For Sunday's Delivery" are written on the outside, so that those letters which are of such importance as to necessitate their delivery on Sunday would be delivered on that day.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

MARQUETRY-WORK.

MARQUETRY-WORK consists of thin and carefully-selected pieces of wood, tortoise-shell, pearl, or other substances, arranged upon a wooden ground so as to form a species of ornamentation. The work intended to be thus ornamented is generally of wood, which must be of a fine grain, and free from knots. If the ground be of a light colour, the marquetry generally consists of dark-coloured woods, such as ebony, mahogany, or rosewood. Metal is frequently introduced, and when employed upon an appropriately coloured ground is not ineffective. During the last century, marquetry-work was more commonly practised than at the present time, many of the marquetry-workers, especially in France and Italy, attaining a marvellous degree of proficiency in the art. The two designs furnished by us this week belong to the period of Louis XIII. They represent the fronts of drawers belonging to a cabinet. The first design is executed in tortoise-shell of two colours; in the second, the design is of copper, upon a groundwork of tortoise-shell. It should be noticed, that the keyhole in the second design is artistically made to form a portion of the ornamentation itself, thus showing how the true artist is enabled to utilise and convert into an embellishment what would otherwise be a disfigurement.

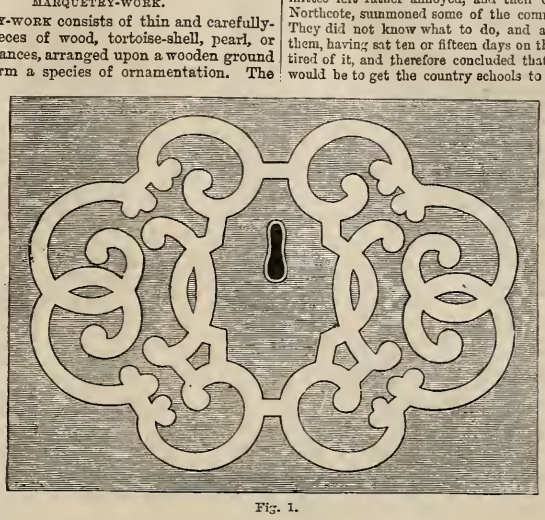


Fig. 1.

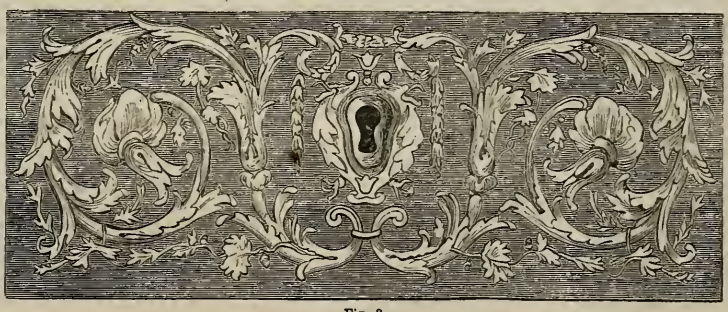


Fig. 2.

SCHOOLS OF ART.

RECENTLY, in distributing some prizes at the Carlisle School of Art, Mr. Edmund Potter, M.P., commented upon the policy at present pursued by the Department of Science and Art. He said the recommendations of the committee of the House of Commons, of which he was a member, were that there should be capitation grants for schools for the artisan class, that the system of making building grants should be abandoned, and that the accounts of the grants to South Kensington should be more clearly made out. South Kensington, however, declined to carry out the first two proposals of the committee; and, curiously enough, in the first report after this there were no accounts whatever published—the first time they had been omitted for ten or fifteen years. He remonstrated with Mr. Bruce; but meanwhile Parliament was sent to the country. The department having taking its own course, some of the committee felt rather annoyed, and their chairman, Sir S. Northcote, summoned some of the committee together. They did not know what to do, and a great many of them, having sat ten or fifteen days on the subject, were tired of it, and therefore concluded that the best plan would be to get the country schools to appeal to Lord Granville. A large deputation went up, and succeeded almost in getting what would probably have the effect of doubling the allowance to them. He thought there was no power of doing anything else. There was nothing now left but testing the thing, and relying more upon their own efforts than upon Government grants. Speaking of the unfairness of the system pursued at South Kensington, Mr. Potter said that the yearly grants to that museum were from £130,000 to £140,000, of which some £30,000 or £40,000 were spent in decoration, and a large sum in articles for the museum, the practical schools coming in for what was left. He did not wish to detract from the merits of South Kensington; its drawing school, perhaps, was the finest in the world, and they were indebted to it for a great many able masters, such as ten or fifteen years ago schools had great difficulty in obtaining; but till they got the educational grants separated from the amount expended on South Kensington, they should never get any satisfaction. What the department had done for art fell very far short of what was due to the country.

The entire number of students last year in all the ninety schools, was only 16,500; and when they considered that more than half of these were artisans, and that the department and the Government had been urging on artisan education for nearly twenty years, he thought that the result was most miserable. If the capitation system had been followed, he believed they should have had, instead of 8,000 or 9,000 artisans, some 30,000 or 40,000 in course of education. Country schools could not be self-supporting; they must either have Government aid or liberal subscriptions. Raising the rates had been suggested; but his own feeling was that they should be lessened, and that Government ought to support this class of education, otherwise it would not be carried on. Art education was not what it ought to be after being established twenty years; but their only course now was to work it out as best they could, and if in the course of a year or two they thought they were wronged, they had the means of redress, and he hoped advocates more powerful than himself would be found to alter the whole system.

Progress of Chemistry.

I.—ITS ORIGIN.

WE shall not say that "the origin of chemistry is lost in the night of ages"—a sonorous phrase, which teaches nothing—but we begin by proving that the initial data, the first materials of chemistry, long before the science had a name, existed in the workshops of the smith, the enameller, and the painter, and in the shops of the druggist and apothecary; in fact, in all the useful arts, cookery included. This shows that science is born of the wants of life.

The term chemistry dates only from the fourth or fifth century of our era. Its true signification is, *the art of dissolving*, or *melting*.

It is with science as it is with the life of a human being. The material elements exist before either is formed; but the living being receives a name, is described and classed, only when it has acquired the form that characterises it. So, also, science can be defined only when it is sufficiently developed to present, by the combination of its elements, a true body of doctrine.

Practice precedes theory. Behold those objects of human industry, drawn from the bowels of the earth, or ruins of ancient edifices. They testify to the high civilisation of these Eastern peoples who have long ago disappeared from the stage of the world. These enamels, dye-stuffs, coloured glasses, instruments formed of metallic alloys, all those artificial products preserved in cabinets and museums, were fabricated at a period when the west of Europe was still buried in the darkness of barbarism. Civilisation displaces itself; it follows the apparent motion of the sun.

History perpetuates the memory of those who have shed most human blood. It has not cherished the name of the mortal who invented *bread*—an invention that is far from being so simple as we might be tempted to suppose; for it was first necessary to find out the plants, the grasses which yield alimentary grain, and this was assuredly no easy task, for the natives of the New World, whence we first obtained the potato, knew nothing of corn before the arrival of Europeans. Then it was necessary to grind the grain, to separate the bran from the flour, and make that flour into dough. Then how did they happen to discover that a little piece of sour dough, of a most detestable taste, caused a mass of freshly-mixed dough to swell up, and that the dough thus prepared gave in cooking a light, savoury, wholesome bread?

The Greeks, whose imagination embellished everything, attributed the invention of wine to a god, and to a goddess that of bread. In Greco-Roman antiquity, Ceres and Bacchus were synonymous with *bread* and *wine*. It is, however, certain that the origin of bread and wine dates from the time when, according to mythologists, men had relations with the gods.

To squeeze a bunch of grapes in order to drink the juice is a very simple idea, which might occur to any one. But the fermented and preserved juice of the grape has a very different taste and flavour from that of grape-juice freshly expressed; and it certainly demanded some little courage to taste a spoiled, *corrupted* liquor—for fermentation of every kind is a *corruption*. Who first had that courage? On this head history is perfectly silent.

To adopt the fermented, corrupted juice of the grape may appear to us a very insignificant matter, a detail unworthy of the name of discovery, now that the human palate is familiar with the taste of wine, and it is so many ages ago!

There is, however, a similar detail, which causes us at the present day to bless the name of Parmentier. The potato was known in Europe more than a hundred years before this benefactor of the human race was born, but it was cultivated only in a small number of gardens; it was shown to the curious as a horticultural rarity. A few amateurs had, it is true, attempted to introduce it among our alimentary plants, but no one cared about it; its taste was compared to that of a rotten turnip. To triumph over this tyrannical, exclusive taste, it was necessary to familiarise the palate with it—to educate it, in fact. This need surprise no one, for our eyes and ears, to become sensitive to novelties, require an initiation—a true education. Objects before which the crowd passes with cold indifference, become marvels and wonders to the penetrating, cultivated eye of the observer. So, for the exotic tubercle to become adopted—which is now almost as indispensable to our tables as bread itself—nothing less was necessary than the perseverance of Parmentier, and the command of a king—of Louis XVI., who, at a court festival, wore a potato-blossom in the button-hole of his coat.

King or subject, he who was the first to cause the fermented juice of the grape to be adopted as a drink, had difficulties no less great to overcome. We mourn the slowness of moral progress. This slowness, as we have shown, is incidental to material progress also.

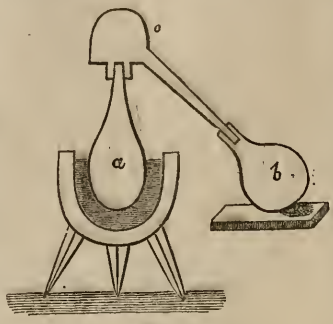


Fig. 1.

To judge by the history of *brandy*, this liquor was very slow in becoming adopted into domestic use. Brandy was first called—as it is to this day by the North American Indians—*fire water*; with turpentine, it entered into the composition of "Greek fire." Next, the properties of prolonging life and of healing disease were claimed for it, and the name of *eau de vie*, or water of life, was bestowed upon it. The Spaniards, in naming it *agua ardiente* (burning water), merely translated the Arabic word *alcool* (the burning) into their own language. Even so late as the fifteenth century brandy was sold only by apothecaries. But to "live long in the land" is a desire as natural to man as it is to amass money—we mean, of course, only such men as live but for the present, and those, unhappily, form the great majority. From the abuse now made of it, brandy should be called by quite another name; for to how many men has it been the cause of disease and death!

There is a reason for everything. Errors and abuses have more times than one been turned to the advantage of the progress of science. This remark applies particularly to alcohol—now called *spirits of wine*, because it is obtained principally by the distillation of the fermented juice of the grape. The abuse of spirits of wine stimulated the spirit of research. While some experimenters mixed brandy with aromatic essences, others improved the process of distillation; and others, again, undertook to extract spirits of wine from other substances besides fermented grape-juice.

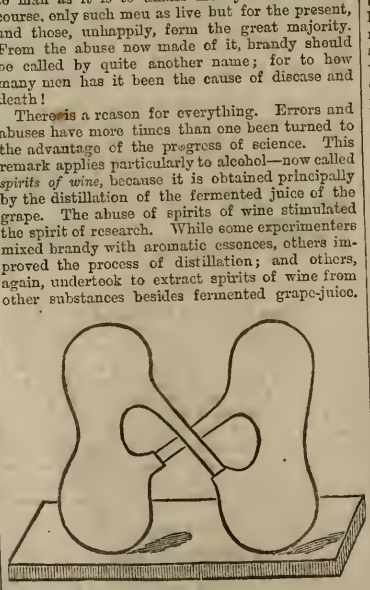


Fig. 2.

So with Malaga wine—in which is cinnamon, nutmegs, cloves, pepper, galenga root, zedoary, lavender flowers, sage, rose-leaves, &c.—they made *hypocrase*; and with this liquor distilled they prepared the *Emperor's brandy* (Francis II., in the thirteenth century). It was with this *Imperial water* that the brave knights fortified their stomachs (such stomachs!) before repairing to the tournament or battle-field.

Distillation must have been known long previous to the Middle Ages. Aristotle, the tutor of Alexander the Great, made allusion to it three centuries prior to the Christian era. "Sea water," said he, "is rendered drinkable by evaporation. Wine and other liquids can be submitted to the same process; after being reduced to vapour they become liquid again."

The idea of distillation may have been derived from attentive observation of what passes in nature. What is rain? Water that falls from the clouds. What is a cloud? The vapour of water, which, on account of its peculiar vesicular state, may be held suspended at variable heights in the atmosphere. Whence come the clouds? From the evaporation of vast sheets of water, particularly from the evaporation of the waters of the ocean, effected by the heat of the sun. Here, then, we have all the elements of a distilling apparatus. The ocean is the still—the reservoir of the liquid to be distilled; the atmosphere is the pipe which is adapted to the reservoir, through which passes the vapours produced by the celestial furnace; the earth is the recipient, in which the aqueous vapours are condensed.

Was Aristotle the first to give an account of this marvellous mechanism? We cannot tell. He previously explained, however, dew to be the condensation of the vapour of water suspended in the air, and which is precipitated on the earth by the action of cold necessary to bring the vapour to a liquid state. He adds, correctly, that snow is only water congealed by a more intense cold. This philosopher also remarked that the water of the sea sustained larger ships than the water of rivers; this is due less to its greater depth than because sea water holds salts in solution. In support of this opinion, he quotes an experiment, since become familiar, by which a fresh egg, placed in a basin of common water, falls to the bottom, while if salt be previously dissolved in the water the egg floats.

This general fact, mentioned by Aristotle, was therefore known to antiquity—namely, that liquids are evaporated by heat and their vapours condensed by cold. But we do not discover in the ancient writings that this fact was realised by an appropriate apparatus.

Pliny, who lived three centuries after Aristotle, describes a process which might have at once led to the invention of a distilling apparatus. "They light a fire," he says, "under a pot containing resin. The vapour rises, and is condensed in some wool spread over the top of the pot in which the resin is heated. The operation concluded, the wool, impregnated with oil, is pressed."

In this process of Pliny's, a pot serves as a retort or still, and a cork of wool is the receiver. How much time and labour it cost before the retort was made to communicate with the receiver by means of a pipe! The simplest things are always the last thought of, and then everybody is astonished that they were not thought of sooner.

History has not preserved the name of him who first thought of making the retort communicate with the receiver; but we may take it for certain that this invention, so simple in appearance, was not realised until seven centuries after Pliny. It is in the writings of Djaber, or Geber, an Arabian chemist of the eighth century, that we find it first mentioned. On the margin of one of the manuscripts of this author (preserved in the Imperial Library of Paris), is the drawing of a veritable distilling apparatus: *a* is the retort, *b* the receiver, *c* the tube of communication adapted to a capital. (Fig. 1.)

The invention of the distilling apparatus singularly contributed to the progress of chemistry. The impulse once given, every one endeavoured to improve so useful an instrument. Among these improvements some were truly fantastic, and most of them were unimportant.

Grain brandy was known in northern countries in the sixteenth century, but its manufacture was prohibited on religious grounds: the grain of wheat was intended to be used only for our daily bread.

A citizen of Nuremberg, one Phillip d'Ulstadt, about the end of the fifteenth century, invented an apparatus called the *two brothers*. This apparatus was intended to produce the *bi-fraternal* or circulatory distillation of liquids. To work it, heat was applied alternately to the retort (pelican) and to the receiver, which by its form differed in no respect from the retort. (Fig. 2.)

After Work.

I AM a steady-going sort of fellow, and very little credit I take for it. The fact is, I like to enjoy myself, and that confession, I should think, will satisfy anybody disposed to cavil at my self-praise, that self-love is at the bottom of it. I do like to enjoy myself; and if my enjoyments are found at home, in a chat with my wife, a game with the children, a little odd jobbing about the house and bit of garden, a walk in the lanes in summer, or a stroll along the streets, to show Nelly the shops, or an hour with the newspaper or book—if, I say, these are my pleasures, they certainly have one or two advantages over the amusements which are sometimes run after. They are cheap, in the first place; next, my wife and family share them with me; and, in addition, I never regret indulging myself in them. I think I have stored up a good deal of love at home; I know I have thought seriously on some matters which I feel I ought to think about. I have read a great many books, both of fact and fancy, and am thankful that there are men and women in the world who have the genius to make great thoughts the property of others less trained and gifted than themselves, and that there is no law of Providence or nature which limits a man's mind to the fashion of his dirty working-clothes, but that he may have something in reserve fitted for his better nature, just as he has a Sunday suit of broadcloth in his box. I was bound apprentice to a trade which gives me a greasy jacket and a black face, but I was not bound to be as senseless as the beams and wheels amid which I work, and blacken my mind as well as my hands, with a tinge, too, that is very hard to wash off.

So, when the bell rings to leave off work, I look forward to a few hours of enjoyment. So do a great many of my mates—some in my fashion, others in fashions of their own, which, I must say, would be anything but enjoyment to me.

We stand for a minute or two chatting outside the gates. Some have empty tin cans in their hands, and some short black pipes. Some are pounced upon by their wives, who have been waiting at the corner, and look very eager and shabby. They want money, and know very well what good wages their husbands get, though very little reaches home. The beershop-keeper gets more than the baker, and the little ones are fed and clothed anyhow.

"Shan't come home!" says Bill Wilkins, who is as good a hand at the vice as any in the shop, and might take as much money as any of us, if it were not for the stoppages. "And just you cut, and don't hang about here with the kids. What would the governor say if he saw you? Where are you going, Joe? I'm good for a pint."

"Up to the 'Lion,' Bill," replies Joe. "I met a chap there last night—a regular swell, tile and necktie to rights—offered to play me at skittles and give me a chalk."

"I'll go with you," says Bill, "and I'll bet a pot on you."

So away they go; and if I were to see Nelly look as that poor woman, Wilkins's wife, looked, I should go mad and do mischief to somebody, most likely to myself. But they are of the bad sort—men who are so far on the wrong road that I am afraid they will never get on to the right one. If their wages were doubled they would be just as poor, and their wives would be just as wretched, and they would have only so much the more to spend on beer and pipes, and in betting that some scoundrelly skittle-sharp would not take the lot in two.

We have several young men amongst us—apprentices nearly out of their time, and young journeymen—who have nobody but themselves to spend their money on, and stand up for their right to enjoy themselves in their own fashion. They would not go in their dirty clothes to play at skittles, not they; but they go to their lodgings, brush up a bit, put on hats instead of caps, and then go to play at bagatelle, or to smoke a cigar and "hear a song." Twice a week there is a "harmonic meeting," as they call it, at the "Rose and Crown." Some "eminent tenor" takes the chair, and is faced by some other eminent person. I went once, just to see what it was like, but I shall not go again. The chairman, who gets 1s. 6d. a night and two glasses of gin-and-water, sings a song—generally "The Pirate of the Isles," or something of that sort—and then "knocks down" the "gent on his left" for another song, having first reminded the company that the waiter's in the room. The gent on the left throws his head back, looks at the ceiling, and sings something about being jolly, and lovely woman, and rosy wine. I should think that the lady who could admire him when he is singing that must be as much like lovely woman as the weak gin-and-water he is drinking is like the rosy wine he has been shouting about. He sings coarsely and without taste, evidently knows nothing of music, and has hazy notions as to the pronunciation of long words; but everybody knocks the table, and tries to persuade himself that it is just the right sort of thing, and that, in fact, "conviviality" and "harmony" are the only two things worth living for. The chairman says, "What shall we say after that, sir?" and the singer, who has been looking under the table at a dirty little song-book, with "Toasts and Sentiments" on the last page, says, "Well, gents, May the wing of friendship never moult a feather." The company knock again, as if they had never heard it before, and were impressed with the idea that to sing such a song as that, and to say "May the wing of friendship never moult a feather," are the great duties of life. It would be a good thing if the wing of such friendship were to moult a good many feathers, and not be able to fly with them to such places any more.

That is how some of our men enjoy themselves. Others go to low theatres, when they can scrape up a shilling or two to spend. Men and their wives, and young men who have no wives, push and struggle for an hour at a door, and sit for five hours in a hot gallery, and enjoy themselves that way. I suppose they believe in remorseless barons, persecuted maidens in white, villanous landlords in high boots and pointed hats with buckles, and village beauties with straw hats pinned to the side of their heads; but I care very little about such amusements.

But there are many at our shop who do not go to low theatres or the harmonic meeting, or play at skittles. Some of the young ones belong to singing-classes, some to mechanics' institutes and workmen's clubs, and a pretty good number are good customers to the shop library. Others are always talking about intellectual improvement—a capital thing, but, like other good things, may be talked about too much. They belong to "halls" where everybody is so enlightened, that it is a sign of mental obtusity to believe in anything. So they have discussions and lectures proving the "impossibility of everything," and settle questions in half-an-hour which the best heads and most anxious, yearning hearts of the world have been engaged with since the beginning.

In these long winter evenings, some of my mates contrive to read a good deal, not only about such subjects as newspapers deal with, but in the higher walks of literature. They are well up in history. Several of them have mastered enough French to dip into works in that language, and others find in the works of Shakespeare, Milton, and Tennyson even, a kind of food for building up the mental structure which some who never look at a book would be astonished at. We attend penny readings and lectures. The readings are very popular, and would be more so if the readers were more careful to consider the suitability of the pieces, both to the hearers and to their own powers. They should not be too long, and the programme should be sufficiently varied to please all.

Several young fellows of the shop are making models of ships, sets of chessmen, alarums for clocks, and other little mechanical contrivances. Others draw, and have capital albums of pencil sketches; while some, who have a musical taste, have acquired a good touch of the fiddle or flute, and meet in twos or threes for practice.

These are winter evening amusements. In the summer, the fresh air, the delicious green of tree and grass, the calm decline of evening, the setting sun, embracing the world in the folds of his crimson mantle before he quits it for a few brief hours, games for the young and old in the open air, the merry race for children, cricket for the young and active men—all invite us to amusements innocent and healthful, within the reach of most, and preparing us for the calm sleep which refreshes us for the work and the pleasures of the morrow

MUNICIPAL SAVINGS BANKS FOR WORKING MEN.

THE movement initiated recently at Bradford has just been followed up at Leicester. The Bradford municipality have given notice that they intend endeavouring to obtain the sanction of Parliament to what is known as the "Bradford Corporation Savings Bank Act." This bill, if passed, will enable corporations to establish Savings Banks, to be conducted on the principle of the present Savings Banks, and guaranteeing the sum of £3 15s. per cent. on all deposits made. The supporters of this measure are in no way opposed to the existing Savings Banks, which are, on the whole, carefully managed; neither do they act in opposition to the recently organised Post-Office Savings Banks. Their leading desire is to afford new and secure means of investment for small capitalists, who will possess ample security for the sums deposited by them, while the deposits will form a fund which will enable the corporation to obtain money, when required, without having to seek it at exorbitant rates in the market, at a time when the rate of discount is high.

At Leicester, Alderman E. S. Ellis stated that the local savings bank was admirably managed, and the deposits had largely increased, showing the confidence the public had in the bank itself. But the manner in which the bank was carried on was not, in his opinion, sufficiently popular for the times. It was open only five hours in the week, and he thought that was not sufficient opportunity for the people to deposit their savings. When one considered the number of temptations which existed at every hour of the day, and almost of the night, for people to spend their money, he thought they should have more facility for saving, and with as little trouble as possible. In the present savings bank there were a great number of inquiries to answer, papers had to be signed, and other forms had to be gone through, which depositors did not altogether like. It seemed to him that people ought to have the opportunity of depositing their money in a bank, in the first place, with perfect security, and, in the next place, with as few arrangements to make when they got there as possible; that the bank should be open the usual banking hours at other establishments; in fact, that working people should be treated just the same as any one of the corporation was treated at their own banks. The bill provided that interest should be paid at the rate of £3 15s. per cent., which should be reckoned as soon as the deposit amounted to 20s., which was at the rate of ¾d. per month. That was an easy way of reckoning the interest, and it represented what would be a fair rate of interest, although it had been thought possible even to allow more than that. At Leicester, the corporation had, at the present moment, borrowed on the security of the property and rates in the borough the sum of £90,000. On that sum they paid nearly at the rate of 4½ per cent.—that was to say, that those amongst them who were wealthy, and had money to put out at interest, got 4½ per cent. for their money. Now, the Town Clerk would tell them that that security was as good as any they could get in the country. Then, on the other hand, let them look at the savings bank. At the beginning of the last year they had deposited £148,000, and at the end of the year £150,000. The depositors, who were principally of the working classes, received interest for that money at the rate of £2 18s. 4d. per cent. The Government allowed £3 5s. per cent. on all money put into their hands, and the committee of the savings bank paid £2 18s. 4d. to depositors, reserving 6s. 8d. for expenses of management, which more than covered those expenses, and that fund was constantly accumulating. He considered the rate of interest was too small for the times in which we lived. Supposing the proposition of the Bradford corporation had been carried out in Leicester during the past year, £1,250 more would have been distributed amongst the depositors than was paid by the savings bank, and that was no inconsiderable amount. If the corporation paid £3 15s. per cent., and allowed 5s. for expenses of management, they would then get their money at 4 per cent., instead of 4½; the people who deposited would have equal security, and a much larger rate of interest. Other advantages would also arise from this system: instead of people sending their money away to be invested in Government securities, at a low rate of interest, it would be invested in their own native town, thus giving them an additional interest in the town.

It is highly probable that the bill will become law during the ensuing session, in which case the example of Bradford and Leicester is likely to be followed by other towns; but, while congratulating the working men of the country upon the increased facilities for secure investments of their savings which the new bill provides, we trust that they will not for a single instant withdraw their patronage from the Post-Office Savings Banks, which, after all, are, in reality, the true banks of the people.

A CONVENIENT DISINFECTANT.—The most convenient, and perhaps the most effectual disinfectant, is chloric ether. It should be burned in a glass spirit-lamp, which is not liable to the same mishaps as other spirit-lamps. Any place of the size of an ordinary room, that can be closed, may be completely deodorised and disinfected by five minutes' use of such a lamp.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JANUARY 27, 1866.

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Progress by Act of Parliament.

IT is often said that "men cannot be made wise or moral by Act of Parliament." This remark, however, requires to be taken with immense abatement. In this, happily, law-abiding, law-observing land, law has a great deal to do with manners, and nearly every-thing to do with political and social progress. If the public law forbids a thing to be done, hardly any one in England can be found to attempt to do it, however right or beneficial it may in itself be. And this is right. In civilisation there could be no order unless men waited for the sanction of the law before doing that which the law might forbid. When the law is seen to be wrong, the step to take is to get the law altered, amended, or repealed. It seems a morally discouraging thing to say, that a man must not do that which he knows to be right, if the law forbids it. If the law is wrong and immoral, it would seem better to break the law than observe it. But this course, though at first sight plausible, carries many unseen evils with it. If a law may be broken by any one or every one who thinks it wrong, or finds it inconvenient, or has, as he may think or say, a good reason not to observe it, there would soon cease to be any order in the country; and where there is no order there can be no progress. Therefore, it comes to be ruled in a free country, that if any persons discover a law to have become obsolete or hurtful, they shall agitate or urge, in all lawful ways, its repeal, and that the bad law must be borne with until a sufficient number of persons are convinced of its hurtfulness in practice to warrant Parliament in repealing it. One good result of this habit is, that before a law is repealed, the understanding of the public is educated up to the full admission of the necessity of the change. This prevents hasty legislation, which is more mischievous in its effects than tardy legislation, and secures that when a change is made, the desirability of it shall be generally felt, and the public mind seldom goes back afterwards and reverses the step.

Law, in this country, is the solemn expression of the opinion of the highest authority in it. It proceeds from the collective voice of the nation appointed to agree and declare upon what is best to be permitted or forbidden, in the name of the interests of the whole people. Mr. Bernal, for many years the able Chairman of Committee in the House of Commons, used to say, "Law is but morality shaped by Act of Parliament." To demand, therefore, that respect shall be paid to public law, is a matter not only of public policy, it is also an act of self-respect on the part of the people. No doubt the penalties which follow on the violation of a law are very strong reasons why it is not broken, but it is at the same time evident, that the power of swiftly and certainly enforcing penalties, is the result of the public conviction that law once made should be obeyed.

A very remarkable instance of this occurred a few years ago in England. There existed, as is well known, a law compelling the publisher of every journal, or periodical of any description, to print on paper stamped with a penny stamp, affixed at Somerset House. If an editor announced that a duchess had the toothache, or a costermonger had slipped off his humble cart and broken his leg, or that the wages of carpenters or bakers were rising in Manchester or Bethnal Green, every copy of the periodical that ventured upon this dangerous ground of gossip or utility, was finable £20, unless it bore a penny stamp. So that if an editor wished to give any reader a small piece of useful, or a fragment of petty information, it cost him, if he had 200,000 readers, £833 6s. 8d. in penny stamps to give it them. This cost, of course, had to be charged upon the purchasers of the papers; so that in those days no cheap paper could exist which gave current information to its readers. Society had outgrown this repressive and absurd law. We are afraid to say how long it had existed. It dated back to the days of Addison and Steele. In modern times public opinion had long been against its continuance. Yet a few years ago, when a responsible and respectable society, formed for repealing this law, went through the newspaper offices of London, to induce some proprietary to issue a single copy of his paper without a stamp, in order to try the question in the law courts, not a single office, of neither daily nor weekly, could be induced to venture upon the experiment. Though a guarantee of £1,000 was in one case undertaken by a Member of Parliament, as legal security, not one proprietor among all applied to, was found, or could be found, to break the law in the matter of a single copy of his issue. It is folly, therefore, to say that the nature of law in England is not of immense influence for good or evil. It is quite impossible to do a right thing in this country if the law forbids it. Men are made to act wisely or foolishly by Act of Parliament in a strictly governed country. Perhaps this fact may help to make legislators cautious as to what laws they do make; perhaps it may help to increase the zeal of those engaged in obtaining the repeal of bad laws; perhaps, and we have this chiefly in view, it may dispose members of the working class to eagerly avail themselves of opportunities recently opened to them, for improving their condition, by the repeal of several most injurious industrial laws, which almost rendered their social advancement impossible. A law once made in England is a chain or a finger-post—a barrier or a path. It stops the way or it points the way: and if an obstacle, when it is once removed the nation can pass on a new road of progress.

A legal obstacle in England stands like a rock. It is regarded as a fixture of nature. It comes to be venerated as a pillar of the constitution. No lawyer will tunnel it—no legislatorial engineer will blast it. The lazy will not touch it—the indifferent think it as well as it is—the timid dare not approach it—the bold are discouraged by it—the busy are too occupied to give attention or aid: and it is a miracle if it is ever removed. At last, some ardent, disinterested persons, who merely get themselves denounced as nuisances for their restlessness and their pains, succeed in persuading Parliament that something ought to be done.

The legislature has of late years opened several new roads of industrial advancement closed to working men before. The repeal of the Combination Laws gave them the legal right to unite to protect and advance their trade interests. Successive improvements in the Friendly Societies' Acts have enabled them to save £200 where they were only permitted to save £100 before. They can now appropriate certain savings to their own education; even that was forbidden until lately. Now, by the greatest improvement of all, they can become sharers in the profits of a commercial undertaking, without being entitled to a control, for which they were unequal, or responsible for losses they could not meet, which opens a new field of advancement, unhoped-for in England, for long years to come; the advantage, both to employers and to workmen, being so great, that the most sanguine despaired of living to see its enactment. We make these remarks as we have in view to call the attention of our readers to the industrial privileges lately legalised, which, being recent, are very naturally as yet little understood, appreciated, or used.

Coignard's Centrifugal Pump.

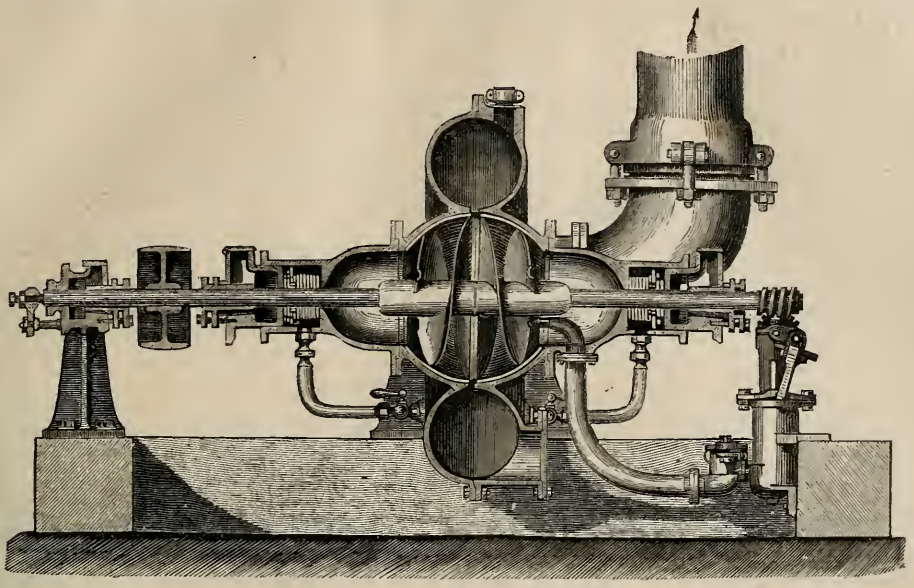
IN the early part of the year 1864, certain French contractors residing at Alexandria, desired to obtain pumps of large calibre, to supply the water necessary for the projected irrigations on the banks of the Nile. All the best makers known were invited to compete, and Coignard's pump, yet new, entered the lists with those which had been tried for a long time in various fields of industry. A judge of unquestionable capacity, M. Tresca, the learned sub-director of the *Conservatoire des Arts et Métiers*, was appointed to pass judgment upon the value of the pumps sent in for competition.

The programme of the competition was far from simple. A pump was required, at the same time portable and capable of raising from 88,000 to 110,000 gals. of water per hour, at least 20 feet. The *Annales du Conservatoire des Arts et Métiers* for January contains M. Tresca's interesting report upon the admirable comparative experiments performed on the Quai de Billy. The figures in this report, relative especially to the other centrifugal pumps on Gwynne's system entering into the contest, are the completest testimony that can be presented of the merits of the Coignard pumps.

Of all the pumps tried, that of Coignard and Co. alone satisfied the conditions of the programme. With the same locomotive steam-engine which served to set in motion all the other experimental pumps, it gave a discharge of 102,300 gals. an hour, while Gwynne's pump gave only 73,920 gals. The pumps on this latter system, many specimens of which were put to the test, presented the inconvenience of becoming disabled frequently; for, as M. Tresca's report shows, only on a single day did the Gwynne pump work for an hour without being obliged to stop. Coignard's pumps, on the contrary, performed regularly without interruption during the whole time devoted to the experiments.

"The experiments with Coignard's pumps," says the report, "were those most easily performed: the working was under perfect command, and a single day sufficed to test them. We may add that, viewing the construction of all the working parts, nothing was found omitted. The feed-pipes especially were well constructed, and all the joints held well together. It rarely happens in experiments of this kind that all the preparations are made with as much care."

Then, while declaring that the problem, which consists in constructing *portable pumps* capable of furnishing, with a draught of 6 mètres (20 feet), a discharge of 88,000 to 110,000 gals. of water per hour, has been given under *exaggerated conditions*, M. Tresca adds: "Nevertheless, Coignard's pump *satisfied* those conditions. Notwithstanding the necessity for too great a velocity, which was the consequence of its diameter being *necessarily*



COIGNARD'S CENTRIFUGAL PUMP—HORIZONTAL SECTION.

reduced, it gave an average of useful effect of 50 per cent. We consider this result very satisfactory, and especially because the excellent arrangement of all the parts of the pump secures perfect stability and regularity in working."

The Coignard pump is especially remarkable for the perfection of its execution. All the pipes are of tinned iron, united by flanges and bolts, leaving absolutely nothing to desire; and when they serve as lifting pumps from a great depth, these accessories have a very great importance.

The boxes of the motive axle are so arranged as to form actual oil-boxes, by which the friction is reduced to a minimum.

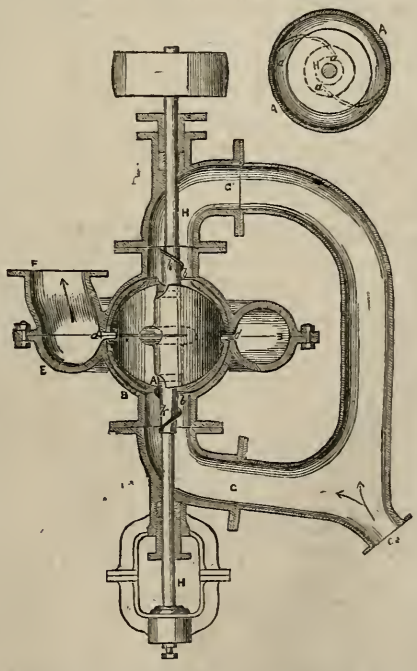
M. Tresca then describes the arrangement of the hydraulic furniture, by means of which, by the water flowing back into the stuffing-boxes of the axle, M. Coignard has succeeded in avoiding all return of air through the stuffing-boxes. After this description of an ingenious organ, the reporter adds:—

"The most important addition, and particularly worthy of notice, is an arrangement, by the aid of which M. Coignard has sought to protect himself from the inconveniences resulting from the accumulation of air round the interior circumference of the drum."

When a certain volume of air accumulates around the axle — and the Gwynne pumps are always liable to this serious inconvenience—this air, not being expelled by the centrifugal force, and, on account of its feeble density, taking the place of the water at the centre, diminishes, and even completely stops the working of the apparatus. The pump is then said to be *dismounted*, and this dismounting entails a host of inconveniences easy to imagine. "This result," said M. Tresca, "is particularly to be feared with pumps intended for exhaustion, when the depth of the water in the well is slight, and that, consequently, the lower extremity of the suction-pipe becomes accidentally emerged." M. Coignard has succeeded in completely avoiding this defect, and, by means of the addition of a small piston-pump, makes pumps which never become dismounted. "This pump," says the report, "draws, at every stroke of the piston, the air or the water taken in at the centre of the apparatus, and throws them out. If it be water, its discharge is added to the discharge of the centrifugal pump; if it be air, *this extraction completely remedies* the inconveniences we have named." To show the efficacy of this *air-extractor*, it will be sufficient to continue the quotation of M. Tresca's words.

"A special experiment has been devoted to ascertaining the effect of the entrance of air by the suction-pipe, which, for this object, was momentarily lifted out of the water. The discharge of the pump was immediately stopped; but, thanks to the air-extractor, the discharge recommenced at the expiration of seventy-five seconds, and progressively increased during the three minutes which appeared necessary to restore matters to their original state. This is a complete and satisfactory proof of the good result produced by this accessory pump."

From M. Tresca's report, it may be safely concluded that the Coignard pump is the best centrifugal pump yet invented, and that it is destined to render great service in the raising of water. For draining, the elevation of water, for irrigation, all public works generally, and manufacturing purposes in which it is important to employ simple, sure, and powerful pumps, great advantage will attend the employment of M. Coignard's centrifugal pump.



A, a spherical drum, revolving closely, but without friction, in an envelope, B. The water penetrates into the sphere, A, by the pipes G G, which may unite and form a single pipe, G 2, through the two poles, b b, of the sphere. The water is discharged by a very small annular aperture, d, the plane of which is parallel to the axis of rotation, and is situate opposite another annular section made in the envelope. The water, driven by centrifugal force, penetrates the closed reservoir of the circular pipe, F, through the small aperture, d. The Inventor prefers to place the axis of the drum in a vertical position, as the pump cannot then become choked with sand or mud.

FIELD LABOUR FOR GIRLS.—The *Long Sutton Parish Magazine* makes an announcement on this subject, which is worthy attention:—"We find that this interesting and somewhat painful subject has attracted the attention of the Government, and that a commission is now engaged in investigation of infant labour in the agricultural as well as the manufacturing districts of the country. We have been long convinced of the practical degradation of the female character by the encouragement of field labour in young girls. If our employers of labour desire to inculcate those habits of modesty, morality, docility, and domestic usefulness, which are essential to the duties and comforts of married life, they will do well to limit their employment of youthful labour to the male sex. The gross association of mixed gangs, the encouragement of coarse and filthy language, of rude conduct, and too familiar intercourse, which prevails in them, can only unfit the girl for the true mission of woman, and degrade her sex to that old level of debased inferiority which she occupied in the heathen days of the barbarous conquerors of this portion of Britain. The true comfort of man depends upon his home; men are capable of going through almost any amount of labour when they have a comfortable home waiting to welcome them; but the wild tone of reckless liberty acquired by a rude taste for the labours of the field in girlhood unfits the tastes and destroys the domestic habits in woman, which alone can make home happy and comfortable to her husband. If our farmers wish for sober and steady labourers, for cleanly cottages, happy hearths, and domestic homesteads around them, they must do their best to encourage *the man* to do his own appointed work in labour out of doors, and *the woman* hers in ministration at home. We cannot but express our satisfaction at the appointment of the commission we have referred to, and shall look forward with interest to the evidence that will be given in the spring, when probably one of the acting Commissioners will be found taking up his abode somewhere within reach of the fen district." The subject is of great importance. The gang system, as at present conducted, is one of the greatest hindrances to the social improvement of the rural labouring classes.

Letters from Lancashire, by a Lancashire Lad.

I.—SOMETHING OF SELF-EDUCATION IN LANCASHIRE.

In commencing a series of letters to your Journal from this district, it can scarcely be necessary to announce that I shall concern myself almost altogether with the doings of that operative population of which so much has been said and written during the past four years. The distress consequent upon the American War, and which is now happily passed away, taught our statesmen that those who only one generation ago troubled them so much, had now so emancipated themselves from the ignorance and the prejudices to which they had been enslaved, as to have become remarkable for their knowledge, and for the patience with which they bore the most dire calamity. Their conduct during the winter of 1862-3 appeared almost a miracle to those who had not watched the progress made by them during the previous twenty years. A history of that period, which should chronicle fully and fairly the many causes which had operated to produce the change which was evident to all, would be, perhaps, as interesting and important a book as could be produced. In these columns I can only pretend to contribute just a little to the right understanding of the changes which have occurred; and, in doing that, I hope to aid in the still greater development of that mutual good feeling and helpfulness which has recently been manifested by all classes of the community.

The better to accomplish my purpose, and to show the stand-point from which I view the things I have to describe, it may be wise, perhaps, to say that many years ago I was a lad working in a dye-house in a Lancashire village. At that time, much work and little leisure was the rule; and those of us who had any desire to educate ourselves found considerably more difficulty than do the lads of to-day. We very frequently had to labour, week after week, at an average rate of sixteen hours per day, and not seldom spent the whole night at work. Looking back at that time, it seems to me strange indeed that the desire to know and understand was not utterly destroyed by the irksomeness of our physical life. I do not wonder that amongst my companions were some of stunted growth, or others with distorted limbs. But even our burdens were apportioned by the same Hand as that which tempers the wind to the shorn lamb. Irksome as our life was, it was not without its pleasures. It had, at times, even a halo of poetry thrown about it. Coming up the dye-house brow late at night, when the pale moon shed its light upon tree and "lodge," and on the river that ran beyond; or on frosty nights, when myriads of stars twinkled with the brilliancy of gems; or on nights when rugged storm-clouds threatened us with their fury, and only permitted the intermittent gleam of moon and stars—we had food upon which the imagination and fancy might grow, and grow more healthy, too, than if fed by the unwholesome fiction which was too profusely thrown in our way. And even in the dye-house, we found occasional half-hours when we might steal away to the boiler-house with our Walkinghame, or Lindley Murray, or hide ourselves in the murk and steam between the "becks" at which we laboured, and there enjoy such books as we could then obtain. Some of us could repeat long passages from the versified romances of Walter Scott; others were deep in Burns and Byron; others, again, discussed questions of theology and politics; others were well read in biography—knew all about Franklin and his kite, about Newton and his dog Diamond, and could repeat (thanks to Mr. Craik and others) long lists of names of men who, from positions as lowly as our own, had risen to honour and renown. Some of us, even in those early days, wrote rhymes for ourselves. We had no pens, pencils, or paper, and so took small, pinky, soap-encrusted boards from the becks, and scribbled upon them with wooden skewers. When we did get free early enough to go to the evening school, we went; and we once determined upon establishing an institution of our own.

From what I have already written, the reader will gather that I am not yet very old; that the lads of my own generation were able to profit much from opportunities which were not offered to our fathers. In its spread in the Cotton Districts, Teetotalism found its way to our village, and by-and-by we had a Band of Hope as well as an adult society. The members of this Band of Hope, spurred to further efforts at self-education by an admirable though poor village schoolmaster, also commenced a Mutual Improvement Society. Some of us had to fit ourselves to teach. One, who is not amongst the living now, won more than our respect by the efforts which, amid arduous toil, enabled him to instruct us all in arithmetic; another of our own village lads was our writing-master; another ambitiously coupled history and geography with reading; and so we managed to get along admirably.

This effort of our own was suggested partly by the success of a similar society at the village of Royton, near Oldham, and not far from our own village. The schoolmaster, of whom I have already spoken, told us all that he knew about the Royton Temperance Seminary, as it was called, and so interested were we in the story, that some of us determined to go over and see it for ourselves. Sunday was the only day we could spare, and that was the day upon which we made the journey. Although it is long ago, and though my memory is well occupied by far different scenes and events, the occurrences of that day are almost as fresh in my mind now as ever. Our walk was a long one, and some of our number were hungry before it was over. There were no ears of corn to pluck, but turnip-fields abounded, and we helped ourselves to a few. One young fellow, a big Cornishman, who did not read much himself, but who had conceived a sort of Newfoundland-dog affection for one or two of the lads who did, chanced to let the knife slip from the turnip into his hand. The cut was an ugly one, and the sight of the blood made the big lad faint. Our schoolmaster-guide ran to a near ditch, and soaking his handkerchief in the water, came back to rescue our companion from his faintness. Will's cut was the only untoward event that happened to us. We reached Royton, walked along its quiet streets, peeped into the faces of the girls, who all of them wore handkerchiefs tied round their heads instead of bonnets, and had thus a primitive prettiness about them, and at length reached the object of our journey.

The Royton Seminary was not a very large building: it seemed much bigger to me then than it did yesterday, when I went there again to refresh my memory. In one room we found globes and maps, and tables sprinkled with papers and magazines. In another was the library. At the top of the stairs was a piece of wood-work which took our fancy very much. It was simply a series of numbered pigeon-holes—each member of the institution having a pigeon-hole to himself. A member coming in placed his library book, with a slip of paper containing the numbers of other books which he wanted, in his special compartment, and then went either to his class or into the reading-room, and whilst he was there the librarian would come quietly, collect the books, exchange them, and place the fresh ones in the pigeon-holes, so that by the time the members wanted to go home, they would have nothing to do but take the new book from where they had left the old one. In one room we found a little organ, and a man playing it. This man had had two fingers torn from one of his hands in the factory, and the skill with which he played piece after piece with his maimed hand was rather surprising. He was, too, the leader and teacher of a fife-and-drum band, held in connection with the Seminary. We found every requisite for such an institution, and all so admirably arranged—such order, such selection, as pleased us all. From the institution we were taken to a mill close at hand, in which several hundred children were being taught, in secular matters as well as in religious, by the working-men members of the Temperance Seminary. We returned home with a much better notion of how working men might educate themselves than we had before entertained.

From what I learned then, and from what information I have obtained since, I am enabled to tell the story of this Royton Seminary. Those who are familiar with the distress, and with the turbulent conduct of the operatives of Lancashire—and, indeed, of the working classes all over the country in the Chartist times of, say, 1840 to 1842—can well understand how unfavourable such times must have been for the establishment of any educational institution. And yet this one of Royton dates from 1840. In that year Messrs. Cooper, manufacturers, allowed the members of the village Temperance Society to use a room in their mill for meetings, and on Saturday nights as a reading-room. A very small library was formed of books given by such of the neighbours as had such things to spare. In 1842 the distress amongst the operatives so increased that, instigated by Chartist agitators, a great movement was set on foot which is remembered as the plug-drawing riot. Starting in Ashton and Staleybridge, this movement spread, until all the district of which Manchester is the centre was fairly in the possession of mobs. Bread was dear, wages were low, and the great cry was, "A fair day's wage for a fair day's work." Even with the experience which we have had in Lancashire during the past four years, it is difficult to say how much was suffered in 1842. Early in the year before there had been some £4,000 distributed by a charitable committee in Stockport. For some thirteen weeks more than 3,000 families had been relieved, and it was ascertained that for that time these people had been subsisting upon little more than one shilling per head per week. The committee was compelled to cease operations for want of funds, and at its cessation had the names of 13,161 individuals on its books, who were then urgently requiring relief. When one considers what such figures mean, and remembers that Stockport was only one of a series of towns in all of which the operatives were equally wretched, he cannot help wondering that want should not have driven them to greater extremes than those to which they resorted. What they did was to proclaim a grand holiday; even those for whom there was work should play; and so the agitator, I suppose, hoped to find in the still gaunter, hungrier bodies of his clients speeches as moving in their eloquence as Marc Antony found in the dead body of Cæsar. Mobs formed, sometimes five, sometimes ten, and sometimes twenty thousand strong, went from one mill to another, demanded that the workers should turn out, and join them in their pitiable designs.

As a rule, property was respected: where the demand of the mob was not at once assented to there was some violence, a rush at the boiler, the plug drawn, and so their design accomplished. It must have been a sad sight to have stood somewhere and have watched the passing of one of these mobs. The gaunt looks of men and women; their unkempt hair; the wild, feverish excitement which kept them together; the pikes and sticks, upon which loaves of bread and huge lumps of bacon were hoisted aloft—the ironical banners of a starving multitude—to have seen all these things would have pained one's heart. Such a mob passed through this village of Royton—some 10,000 people—held a meeting in Cooper's Square, passed resolutions, and succeeded in stopping what work was being done. After the first day some few factory lads of Royton determined that they would not go any further with the turn-outs, but wait quietly in their own village until they might be allowed to go back to the mills. They met in the room in which they were accustomed to hold their teetotal meetings, and read and talked over matters there. They then had to move to a less room, for which they had to pay 1s. 2d. per week as rent, and here, and under such circumstances, the Temperance Seminary had its beginning. The members were all lads, some one or two of the dozen being, perhaps, twenty-two or twenty-three years old. Their subscription was, of course, small. In a very short time they doubled their numbers, and when the mills were opened again, they determined to continue the little educational work they had commenced. They framed rules, the first of which was that all members should be pledged teetotalers; and the second, that all members should be prohibited from gambling. With these stringent rules they prospered, and had considerable influence for good upon the characters of those by whom they were surrounded. By-and-by they built the institution which I and my companions went to see. And now for the result. Of the original members, of course, many have been lost sight of, but I have a record of some. Of those who were factory lads then, one is incumbent of a parish in Cheshire; there are three certificated schoolmasters; five are master cotton-spinners; two are managing mills in Russia, and most of the others have obtained respectable positions as foremen, &c., of mills in this district. Just now the Seminary is more like

an evening club for quiet-living, steady workmen, than anything else: its principles are as exclusive as ever, and, perhaps, it can be little else in the future than what the memory of a good thing always is. All through its existence it has been entirely dependent on its members, for the stringency of its rules prevented its having the extraneous aid which more open institutions could obtain. I am inclined to think myself that, much as this little village institution has done, it might, perhaps, have done still more, if its rules had not been so exclusive. Royton has now four other educational institutions.

Let me for a moment revert to our own village. We came back from Royton fully determined to do all that had been done there. In a few weeks we announced that after a certain date we should charge an entrance fee, to give new-comers a right to a share in the little property we had accumulated; and this led to an alarming influx of members. This, again, led to confusion, and, though many of us received much good from our little work, there is no building standing to-day like that which is the monument of the factory lads of Royton.

Manchester, Jan. 1866.

The Weavers' Dream.

TWENTY-ONE years ago certain working men in a third-rate town in Lancashire dreamed, like Bunyan, a dream. Their subject was different from his. The famous Bedford tinker dreamed of the kingdom of Sin—the Rochdale weavers dreamed of the kingdom of Labour. Both dreamers, however, had one vision—that of the pilgrimage out of the evil and hopeless land. Both knew there was a rugged pilgrimage before them, and the flannel weavers of the town in question resolved, like their great prototype of Bunyan's immortal story, to set out without delay.

We do not pursue any further the parallel between the two sets of pilgrims: a different and simple comparison will be sufficient for our purpose. In 1844 Co-operation was no unknown thing. It was worse than that. As sometimes happens at the police courts, it had, like the prisoner at the bar, been seen there before. Co-operation was an old offender; it had been tried and condemned many times. Many workmen had lost by it; more had suffered disappointment by it. It was regarded as an exploded scheme. To use a nautical simile, the vessel was not seaworthy; in fact, Co-operation was little better than a leaky, rickety cockboat, in which few would sail out into the sea of Industry. It was doubtful whether it would ever get into port, and was sure to be a long time about it, if ever it did arrive. However, a few resolute mariners, who could not be much worse off if they went to the bottom, made up their minds to the attempt.

A year was spent in preparing for the voyage. The sides of the old hulk were caulked, and the old rigging repaired. She had been on the water then sixteen years. Her condition was very frequently discussed, and unfriendly neighbours shook their heads. Others tried to keep up the spirits of the sailors. An outsider or two did take a small share in the venture, but the cargo was almost entirely supplied by the crew which was to man her; and at the end of twelve months she was launched, with £28 worth of provisions, consisting chiefly of oatmeal, salt, and bacon; and general preparations were made for a very rough passage. The town's-people were on the look-out on the shore. The crew were a little shy at getting into so insignificant a craft. Everything was mean, shabby, and poverty-stricken about it, excepting the bravery of the English sailors, who sustained their national renown for pluck and daring. Some of the spectators wished them God speed, but these were too poor to aid, and mostly too desponding to believe in their own kind-hearted hope. Others jeered, for never was a more absurd, battered, leaky old barque seen; and they said, "That's the Weavers' Dream, is it?"

In more prosaic, but not more true terms, it may be told that Co-operation was a distrusted and doubtful thing twenty-one years ago, when the flannel weavers of Rochdale began business in Toad Lane on £28 of capital, the produce of a year's hard savings. Gradual gains were made. Years of vicissitude and progress followed. The "Pioneers' Store" as it was called, increased; members multiplied; new departments of business were opened. Panics occurred, and again it was predicted that the "Weavers' Dream" would end as dreams usually do, in fantastic nothingness.

This was not to be so. The old craft made many voyages, and always an increasing profit on its freights. The storm-clouds darkened its passage, the crew were often driven upon the rocks, but each year they repaired, strengthened, and new-painted their vessel; and at length new ones were launched, amid expressions of confidence unknown before, and rejoicings that none ever thought to witness. At length 1861 arrived, and storm-clouds blew from the South and threatened the wreck of everything. A scorching monsoon blew across the Atlantic, and withered in a night all the vast industry of the northern counties. Then was to come the wreck of Co-operation and the crash of Stores. Then, at last and for ever, the Weavers were to awaken from their long and infatuated Dream!

A few hours ago we received from one of the active members of the Store the annual Almanack of the Equitable Pioneers, in which they give a review of their position—and, we are glad to say, their progress—during the four years of the great cotton famine. Always interesting, the Almanack is this year well written. We learn from this source that in December, 1861, when the panic had commenced, the cash they received over their counters for the sale of provisions and other articles of household and personal use, amounted to £176,000. During the year of 1863, which has just closed, the cash received has reached £196,000, showing an increase of £20,000. Their capital in 1861 was £42,000; now it is £78,000. Four years ago their members were 3,900; now they are 5,300, showing an increase during the panic of 1,400 members. This looks as though Co-operative crafts were places of safety in a storm.

In 1862 these Pioneers built a new shop at Blue Pits. There's a name!—an honest name, however, for the pits deserve it! This Blue Pit shop cost £700. Next year they built a slaughter-house and stables, at a cost of £1,000; and also a new shop at Pinfold, which cost £1,000. This was pretty well for 1863. In 1864 they put up a store at Spotland Bridge, at a cost of £1,150; and another in the Oldham Road, at a cost of £1,700; and last year they finished the Buersil Branch, at a cost of £1,000. The Pioneers modestly say that these buildings do not disgrace the neighbourhood in which they stand. The fact is, there was little or nothing to disgrace—there being no lively or inspiring buildings anywhere about—and these stores are cheerful and wholesome, and not inelegant buildings.

Nor is this all. The Pioneers have commenced excavations in Toad Lane, which they have immortalised—which ought to be called the Pioneers' Highway, for it goes up a hill, and they have made the Hill of Difficulty easy—for the purpose of erecting a great Central Store, which they hope will be an ornament to the town. We hope so too, for Rochdale needs and deserves a few architectural ornaments. During the four years of panic of which we have spoken, the members have drawn out £83,000; the society having been a savings bank on this great scale. Better than this, the Pioneers have given £750 for the relief of the distressed, and to other charitable purposes. And quite as honourable to their intelligence as these gifts are to their humanity, they have appropriated £1,840 to the purposes of self-education. There is more to tell; but we have said enough to show that the working men of Rochdale know how to dream dreams, and that the Weavers' Co-operative Dream has turned out a splendid and instructive reality.

THINGS TO BE FOUND OUT.—Nature is not exhausted. Within her fertile bosom there may be thousands of substances yet unknown, as precious as the only recently-found gutta-percha. To doubt this would be to repudiate the most logical inference afforded by the whole history of the earth. Corn and the grape excepted, nearly all our staples in vegetable food are of comparatively modern discovery. Society had a long existence without tea, coffee, cotton, cocoa, sugar, and potatoes. Who shall say that there is not a more nutritious plant than the sugar-cane, a finer root than the potato, a more useful tree than the cotton? Buried wealth lies everywhere in the bowels of the earth, which needs but the true divining rod of organised action for its discovery.

PARAFFINE FOR WATERPROOFING FABRICS.

IT was proposed by M. J. Stenhouse to employ paraffine to render fabrics, felt, and leather waterproof. An improvement on his process has been suggested, which consists principally in combining drying oils in variable proportions with the paraffine, it having been remarked that paraffine alone—especially when applied to fabrics—was disposed to separate from the fibre after a short time, in consequence of its tendency to crystallise. The presence of but a very small quantity of drying oil causes the paraffine to adhere much more firmly to the texture of the fabric, the oil being gradually converted into a resin by absorption of oxygen.

To apply paraffine to waterproofing, it is first melted with the requisite proportion of oils, and then moulded into blocks. This composition may be applied upon fabrics, by rubbing them with one of these blocks, either cold, or gently warmed; or the compound may be melted and applied with a brush, impregnation being afterwards completed by passing the tissue between heated cylinders. After this mixture has been applied to blinds, awnings, tents, &c., they repel water, but still admit the passage of air.

The fabrics thus imbued with paraffine constitute an excellent basis for the fabrication of a certain class of articles—such as cloaks, awnings, tarpaulings, &c., which require to be rendered completely waterproof, by coating them on the back with drying oils, the paraffine, in great measure, removing the injurious influence of drying oil on the fibres of the textile fabric.

The mixture of paraffine and oil may also be applied with advantage to leather and skins of various kinds. The most suitable means to effect this object, are to coat the leathers or skins of which the articles are made—such as boots, shoes, harness, pump-valves, &c.—with the melted composition; then to gently warm the articles until it is completely absorbed. When leather is impregnated with this mixture, not only is it perfectly waterproof, but much stronger and more durable. The beneficial effects of this process may be specially observed upon boots and shoes, to which it imparts much firmness, without destroying their elasticity. It not only renders them extremely durable, but it possesses this advantage over the ordinary dressing—that it does not injure the gloss or polish of the articles, but, on the contrary, improves both.

The superiority of paraffine over the materials employed in some kinds of impermeable products, consists in its low price, and easy mode of application, without producing any material alteration in the colour of the articles—points which, in the case of white fabrics, or those tinted of light and delicate colours, are of great importance.

PROTECTION OF WATER FROM THE ACTION OF LEADEN PIPES.

IT is well known that water passing through ordinary leaden pipes, or kept in leaden cisterns, becomes impregnated with poisonous salts of lead. Various methods have been proposed to remedy this inconvenience, but hitherto none have proved completely successful. Recently, however, Dr. Schwartz, of Breslau, has suggested the conversion of the inner service of leaden pipe into the insoluble sulphide of lead, which renders the metal so unattackable, that in distilled water kept for a considerable time in contact with the metal so protected, no more lead could be discovered than if it had been passed through glass tubes. Dr. Schwartz operates in a very simple way, by merely filling the pipe with a hot concentrated solution of sulphide of potassium or of sulphide of sodium. The temperature employed is that of boiling water, 212 deg., and the solution is left in the pipe from ten to fifteen minutes. In practice, a solution of sulphur in caustic soda has completely satisfied the requirements of the experiment.

Sulphide of lead is the most insoluble of all the compounds of that metal, and Nature herself presents an example in support of Dr. Schwartz's theory, since the waters drawn from mines of galena (sulphide of lead) are quite free from lead.

MODELLING CLAY.

SOME time ago the addition of glycerine to modelling clay was recommended as a means of preserving its plasticity. Recent experiments fully confirm this property of glycerine. A lump of clay kneaded with a given quantity of glycerine, and kept in a warm room for two months, remained as plastic as on the first day. In this experiment the first step is to completely dry the clay, then to pulverise it, and then to mix it with the requisite quantity of glycerine, of the specific gravity of 1·231. If the glycerine is added to clay while in the moist state, the water gradually evaporates, and leaves the clay deprived of its plastic properties.

If the cost of the glycerine be objected to, it should be considered that the advantages resulting from its use are worth the expense, since the clay retains its plasticity for an indefinite period of time, and is cheaper than modelling wax, which it can be substituted for in all cases, even in the most delicate works, and it possesses the additional advantage of being unaffected by heat and cold. The clay and glycerine are mixed in the proportions of 45 glycerine to 100 clay.

Things Talked About.

ONE of the greatest difficulties earnest and provident promoters and members of Friendly Societies have had to contend against has been the want of accommodation for the purposes of meeting otherwise than in the large rooms of public-houses. Publicans are well aware of the fact, and also know the value of their houses being made places of resort by a large number of persons; hence the eagerness they often show to assist the establishment of Friendly Societies, and the obliging readiness with which they offer accommodation to the members, expecting, of course, a good return in money spent at the bar. Mr. Tidd Pratt, the Registrar of Friendly Societies, has recently published a letter, in which he refers to the subject. He mentions one society of 120 members, at the meetings of which 258 gallons of beer were drank in three years. That quantity is not in itself very alarming, representing only about three quarts per member per annum; but the evil is that the payment of beer money was compulsory on the members, whether they drank or not; and besides, no account was taken of the drinking at the bar, which we may guess to have been considerable. Besides, so eager are publicans to establish societies in their houses that a number of small societies are formed, none having members enough to ensure permanence, and, of course, a disastrous failure is the frequent result. In most of the Working Men's Clubs a portion of the premises is let one or two evenings a week for the meetings of Friendly Societies, whereby great and mutual good has been effected.

The Messrs. Smieton, of the Panmure Works, Carnoustie, near Arbroath, have completed the erection of a Literary Institute solely for the benefit of the workmen in their employ. The building, which has been erected at a cost of £2,000, is very handsome, and contains a fine hall and numerous other rooms. A school for the younger workpeople is attached, and a master and mistress are provided. The opening of the institute took place in the presence of the Lord-Lieutenant of the county (Earl Dalhousie) and a very large gathering of clergy and gentry. Earl Dalhousie highly complimented Mr. Smieton for his liberality, and especially noticed his establishment of a Penny Savings Bank on the works.

The mention of Savings Banks leads us to notice that the Union Savings Bank, at Devonport, has experienced an increase of funds during the past year to the extent of £2,830. The total receipts of the year have been £85,000, showing a surplus of £4,000 on withdrawals. There are at present 15,492 depositors, 138 of whom were new during the year. The money invested with the Government amounts to very nearly half a million! Well done, Devonport! Amazing as has been the success of the Post Office Banks, they have not quite absorbed all the savings of the provident among the working classes.

Dyers must keep their eyes open to new discoveries. Chemists are continually extracting beautiful colours from the most unpromising matters. We have already manve and magenta from coal-tar and the refuse of gas-works. Now we see announced a beautiful indigo blue from peat.

But if M. Frantz, a metallurgist, and M. Henri Faure, a Parisian journalist and chemist, are to be believed, they have achieved a discovery which will throw all others into the shade—nothing less than the transmutation of metals and the secret of gold which the old alchemists went mad about. They announce that "they have discovered a method for transmuting silver, copper, and mercury into gold, which are only one and the same metal in different dynamic states." The philosopher's stone at last. We now only want the elixir of life and a few other little secrets to be penetrated, and then—we shall see what we shall see.

It is well known that the amount realised by the Sheffield Inundation Fund was far in advance of the necessity, and a large amount has been returned to the donors. A proposition is now made that a portion of the surplus should be applied to the establishment of Working Men's Clubs in Sheffield. A very laudable project. Mr. Edward Bennett, of 50, Fargate, Sheffield, is the treasurer appointed to receive donations.

French ironmasters and engineers are vigorously competing with English houses. It is not long since a French manufacturer furnished some beautiful locomotives to one of our largest railway companies. We see it stated, in the *Moniteur des Intérêts Matériels*, that the proprietor of one of the principal foundries in the Pas de Calais is at present delivering a large quantity of cast metal to English houses, and that he has lately concluded a contract for delivering a considerable quantity of cast metal in the British colonies. Another French house nearly obtained a contract to the amount of £13,600 to supply water-pipes for Leeds, but lost it because an English house underbid them by only £4. A close race, and one that will make our English engineers and manufacturers look ont sharply, if they would maintain the old supremacy of England in hardware. The ironmasters of the Moselle district are extremely busy.

Germany would appear to be rivalling Ireland in the rapidity with which the industrial population is being thinned by emigration. Last year 95,000 German emigrants quitted Vaterland, mostly for America. The fact is full of suggestion as to the political and social condition of the German States.

Reduction of the hours of labour is still the subject of considerable agitation. The operative cloth-pressers of Leeds complain that they are debarred from the means of instruction, amusement, and recreation which are enjoyed by their fellow-workmen in almost every other occupation. They begin work at six in the morning; and nine, ten, and often eleven, are the hours for leaving off work. They respectfully request merchants and finishers to endeavour to arrange for their men to leave off work at seven in the evening and three on Saturday afternoon.

The *Birmingham Daily Post* is calling attention to the case of the fishmongers' assistants of that town, who work, on the average, thirteen hours a day. That is not so extreme a case as the other; and in such a trade the long hours are not easily avoided. There must be early marketing, and there must be attendance on the working classes who eat fish for supper, and who very often must perforce postpone their purchases until after their own work-hours. Still, if the men can fairly see their way to amelioration, we heartily wish them success in their efforts.

While others are agitating for a reduction of the hours of labour, the Manchester bookbinders are congratulating themselves on a victory achieved. A few years since they were working sixty hours a week. Now, voluntarily on the part of a large number of the employers, the hours of work are reduced to fifty. In Edinburgh and Glasgow a similar reduction has been made. We trust that the very important consideration of the use to be made of the increased time for leisure is not lost sight of.

A master joiner of Preston is in a curious difficulty with his men. A workman, who was behindhand with trade subscriptions, was pressed to pay up, and knowing that his fellows would not work in the same shop with a defaulter, left the place. The master, Mr. Barber, supposing that undue pressure had been put upon him, discharged the other men. The consequence is, that no member of the Trade Union will work for him unless he consents to pay "a fine of £5." He refuses, and there for the present the dispute rests, the society supporting the discharged men.

Our attention has been invited to a system by which Free Libraries have been established at Alperton, Norlkolt, O'Connorville, and other villages in Middlesex and Herts. The libraries are on the exchange principle, books being freely circulated, whereby each small library is virtually increased in value. The principle is a good one, and capable of considerable extension.

The *Melbourne Argus* is taking credit for the production of locks by Mr. Young, a colonial manufacturer, which are equal to any made by the best houses in England, and can be supplied at the same price as imported locks. A contract for 1,000 mortice locks for the fittings of the new lunatic asylum has been taken and carried out most creditably. Each lock had to be of different construction, and yet each to be opened by a master key. No difficulty was experienced in obtaining competent workmen.

The scheme for supplying London, and many other towns lying on the route, with pure water from the Welsh mountains, and which are the sources of the Severn, is assuming a definite shape. The length of the proposed aqueduct is 180 miles, passing the hills by tunnels and the open country by arches. Three reservoirs on the hills are proposed to contain nearly three million cubic feet of water. The project is gigantic; whether there is any chance of its being realised must depend upon economic considerations, for which we have as yet very inadequate data. The great water companies, whose sources of supply are much nearer the metropolis, will probably have something to say on the subject. But if the threat of competition induces them to increase and cheapen the supply, London will gain greatly.

The Silkstone Collieries, the last of the South Yorkshire coal-pits which were under the restrictive system, began to work full time on Thursday, the 18th inst. An advance of five per cent., with weekly payments, has been conceded. There has, however, been a lock-out at three of the Thorncliffe Collieries, not, we trust, destined to be of long continuance.

RUSHOLME (MANCHESTER) PUBLIC HALL AND LIBRARY.—The annual meeting of this institution was recently held, when Mr. Wilde, the honorary secretary, read the report of the past year, from which it appeared that the average number of members had been 194, against 200 the previous year; and in the day-school there had been an average of 42 pupils, against 40 in 1864. Mr. Lawton, agent of the Association of Lancashire and Cheshire Institutes, had inspected the school, and had given a highly satisfactory report of its efficiency. During the year, 6,401 volumes were issued from the library. The preliminary savings bank was carried on with unabated zeal. The number of deposits averaged 45 per week; the sum in hand is £50 0s. 8d., and the amount transferred to the Manchester Bank during the year, £57 14s. The treasurer's statement showed that the income had been £361 9s. 10d.; the expenditure, £337 2s. 1d., leaving a balance in hand of £24 7s. 9d.

General Information.

CLUBS AND INSTITUTES.

KENTISH TOWN WORKING MEN'S CLUB AND INSTITUTE.—A meeting has been held at this club to consider the best means to be adopted for increasing its usefulness and improving its position. Besides the special committee appointed for the purpose, there were present J. T. Hart, Esq., E. Cobb, Esq., Alfred Preston, Esq., and the Rev. H. Solly and Mr. Pocklington from the Parent Society, with Mr. Barrow, of the Camden Town Club. Several causes were mentioned for the want of greater prosperity—the need of better premises, and especially of a hall for concerts, entertainments, &c., being among the most prominent. Mr. Solly, however, dwelt on the need of more active personal effort on the part of the committee, far too much being left to the secretary, who, though indefatigable in his efforts, could not possibly attend to all the matters urgently requiring his attention. The premises, he said, were good enough to do a vast amount of good in the neighbourhood, if only the club were well worked; and he recommended better organisation with various members of committee to undertake different departments. He suggested that they should get gentlemen in the neighbourhood to bring microscopes, stereoscopes, engravings, maps, &c., as the basis of amusing conversation, one or two evenings in the week; sometimes reading a leader from a newspaper, or anecdotes from a book of travels, arranging for discussions, lecturets, harmonic meetings (free-and-easy), &c., on other nights. Then the members of the club must each and all exert themselves to bring a friend to enjoy what was provided, and thus lead them to join the club. Part of the premises might be let till they could afford to pay for and occupy the whole. Mr. Barrow gave some valuable information respecting the way in which they had gained such great success at the Camden Town Club, which will be embodied in a subsequent notice. The Hon. Sec. asked leave to read Mr. Solly's letter to Lord Lyttelton in the *Daily News*, which was accordingly done. This letter is being published as an "Occasional Paper," by the Council of the Union. The gentlemen present stated their willingness to give what help they could in the way suggested, and steps were taken to carry out the various plans proposed for interesting the working men of the neighbourhood, and drawing them to the club. Thanks were accorded to the visitors, and the meeting separated.

HARTLEPOOL.—The annual tea party of the members of the Workmen's Institute of the West Hartlepool section of the North-Eastern Railway, was held in the Borough Hall, Stockton, when upwards of 200 sat down to tea. At the subsequent meeting, Mr. J. Carson, superintendent of the locomotive department, presided. The state of the institute was reported to be favourable. Several addresses were given, the speeches being interspersed with music and singing. About ten o'clock a ball was commenced, at which 150 couple were present.

INVERNESS WORKING MEN'S CLUB.—Miss Burdett Coutts has kindly sent, carriage paid, the following generous contribution of books to the Inverness Working Men's Club:—Scott's Waverley Novels, 25 vols.; Scott's Poetical Works, 6 vols.; Dickens's Works, 17 vols.; Wordsworth's Poems, 3 vols.; Campbell's Poems; Macaulay's History, 5 vols.; Smiles's Works, 8 vols.; Livingstone's Travels, 2 vols.; and several other works of one volume each, in all amounting in value to upwards of £30. Mr. Thomas Brassay, of London, and Mr. James Falshaw, of Edinburgh, who are amongst the largest employers of labour in Britain, have kindly sent handsome donations to the club. The average attendance is about 150 every night.

THE MIDLAND INSTITUTE, BIRMINGHAM.—The annual Report of this important and useful institution has just been published. It is very interesting, but we regret to learn that the number of members has been slightly diminished since the commencement of the past year, notwithstanding the exertions that have been made by the Council to gain additional subscribers. The average falling off, through deaths, removals, and other causes, has amounted for some years to at least 10 per cent. of the entire number of the members, and the difficulty of replacing these losses by new subscribers has been in some measure increased by the opening of the Free Libraries. The Council therefore express themselves as exceedingly anxious to give its subscribers any increase of privilege that may be thought desirable, and to offer all the inducements in its power to those who have not at present joined the Institute as subscribers. Improved facilities have been made for members desirous of attending the lectures, and it has also been decided to establish a class in elementary chemistry, exclusively for the use of subscribers and resident members of their families. Since the opening of the Free Libraries a large addition has been made to the number of persons visiting the museum of the Institute; the numbers being 2,512 for the past year, as against 1,229 in 1864. In the Industrial Department the number of students attending the various classes has largely increased, the classes themselves being carried on with success. The total number of persons now receiving weekly instruction in connection with this department amounts to 1,067. A class for the study of geology has also been formed, and in every department of the Institute the

utmost energy has been displayed, but the increase of expenses occasioned thereby has caused a deficiency of nearly £330 in the balance-sheet, a loss which we trust the men of Birmingham will not allow to fall on those who have laboured so long and so earnestly in the cause of social and intellectual improvement.

CO-OPERATIVE SOCIETIES.

DUNFERMLINE.—From the recently published report of this association, we learn that at present there are 603 members, with a capital of £1,686. The amount drawn for goods during the past nine months was £9,257, which realised a profit of £671, giving on an average 1s. 7d. per pound as a dividend. The sinking fund amounts to £160. Plans for the erection of a new store, &c., are being prepared, and it is hoped the building will be commenced early next spring.

LINCOLN CO-OPERATIVE SOCIETY.—The seventeenth quarterly report of this association shows that during the past three months £923 have been received for goods; the profits derivable therefrom, amounting to £48 5s. 6d., allowing a dividend of one shilling in the pound on members', and sixpence in the pound on non-members' purchases, after paying five per cent. interest on capital, and reducing the fixed stock account. The capital during the quarter has increased £104 9s. 3½d., the total amount of paid-up capital being £672 7s. 6½d. The amount of withdrawals was only £15 16s. 7½d.

SETTLE (YORKSHIRE) EQUITABLE INDUSTRIAL CO-OPERATIVE SOCIETY (LIMITED).—The nineteenth balance-sheet, for the quarter ending December 16, 1865, has just been issued by this society. The amount of business done during the quarter has been about the average, and though the profits on some goods have been smaller than usual, the society found at its disposal a surplus of £77 14s. 11d., being the aggregate amount of profits for division among members and others who have been purchasers at the store. This was sufficient to enable the society to declare a dividend of 2s. 2d. in the pound on the amount of purchases by members, and 1s. 1d. in the pound on non-members' purchases.

MANCHESTER AND SALFORD EQUITABLE CO-OPERATIVE SOCIETY.—The annual meeting of the members and friends of this society was held on Saturday evening last, the chairman being the Rev. Dr. McKerrow. Mr. Percival, the President of the Society, read the report, from which we gather that six years ago the society commenced with one shop, whilst now they have twelve; that their capital was then about £100, whilst now it is £14,000; that the number of members has increased from 50 to 2,000; that the weekly sales, which only amounted to £50 per week at the commencement, now reach nearly £1,000. Since the beginning of the society, the sales had amounted to £201,697, being an average of £7,757 per quarter; and the net profits realised had been £12,773. Out of those profits, interest on capital had been paid at the rate of five per cent., amounting to £1,719. The sum allowed for depreciation of fixed stock was £888; and donations had been made (to the Infirmary, and other like institutions), amounting to £60. During the last three years £155 had been amassed for educational purposes, and they had £100 as a reserve fund. The remainder, amounting to £9,851, had been divided among members and non-members. Mr. Percival gave an illustration of the advantages of the principles upon which this society was worked. He said that if a member had spent £1 a week from the time the society started, and had allowed his profits to accumulate, he would now have had £30 placed to his account. The society is now £3,000 richer than it was last year. The library, consisting of more than 1,000 volumes, is now open to the members, and the directors will be glad to receive donations of books, &c., which members or others may feel disposed to contribute.

WAGES.

MEETING OF ENGINEERS.—A meeting of engineers, smiths, millwrights, pattern-makers, and other engineering operatives in the north district of London, has been held at the Talbot Inn Hall, Caledonian Road, King's Cross, in furtherance of the movement now agitating the trade for an advance of wages. Mr. Charles Warren, of the Steam Engine Makers' Society, on taking the chair, said the meeting had been called by the Advance of Wages' Committee, consisting of about forty delegates from the leading shops, for the purpose of ascertaining whether the men in the North London district were willing to co-operate in the advance movement, and as to how far they were prepared to go. As soon as the opinion of the districts was ascertained, an aggregate meeting of the trade would be called, the amount of advance to be asked for finally decided upon, and delegates appointed to wait upon the employers with the request. This movement had not been taken up until after due deliberation, and would not be relinquished until its object was accomplished—a better and more just remuneration for their labour. Engineers were, as a whole, a highly-skilled body of workmen, and were shamefully under-paid, and it was not to be expected that they were going to stand idly by and see much less skilled bodies of workmen step in advance of them in point of wages. He had also to assure those present that this was not a society movement alone, but a united movement of society and non-society men. He commended that fact to the attention of certain employers. They saw the wealth of the country daily and rapidly increasing, and they thought it high time to claim a more equitable share of that wealth. Several men then addressed the meeting, urging the necessity and justice of an advance, and offering suggestions as to the best method of obtaining it, all idea of a strike being generally deprecated, while it was, at the same time, agreed that should such a course be rendered imperative, it should not be shrunk from. After a long discussion, in which the question was ably and calmly handled, a resolution was unanimously adopted, "That, in the opinion of the meeting, not less than 10 per cent. advance on the present rate of wages should be asked for."

HAND-LOOM WEAVERS' WAGES.—About a month ago the hand-loom weavers of Barnsley held a meeting to consider the propriety of asking their employers for an advance of 10 per cent. on the then current rate of wages. As the linen trade of Barnsley was never known to be in a more prosperous state, it was resolved to ask for the above advance. We are happy to say that the advance, to the extent of 10 per cent., has been conceded at almost every manufactory in the town. Many other branches of trade in the town have recently been characterised by a movement on the part of the workmen for an advance of 10 per cent. of wages, which has been conceded in several instances.

THE LONDON COMPOSITORS are asking the employers to agree to an increased scale of wages, to the extent of a halfpenny a thousand on all descriptions of work, except newspapers, and three farthings for reprints. At present the minimum rate for establishment hands is 33s. a week; the proposition is that 36s. shall in future be the rate, and the hours of work reduced to 58 per week. Advances in a similar ratio for overtime, corrections, and various technical charges, are also asked for.

LABOUR MARKET.

CAPE OF GOOD HOPE.—By the arrival of the Cape mail we have news from Table Bay to the 9th of December. The distress amongst the labouring classes continued at both ends of the colony. Accounts received from the interior represent the destitution and distress existing there as very alarming. Many men who were commonly supposed to be in a far better position than working men, were said to be suffering severely from privation. The Bishop of Cape Town, on a recent return from a visitation tour, had stated that ostensible proprietors of 6,000 or 7,000 acres of land were actually suffering from want of the common necessaries of life. Very praiseworthy exertions had been made both by the municipality of Cape Town and by public subscriptions to alleviate the distress, but these efforts have been found unequal to meet such a great emergency; and a memorial has been presented to the Governor, requesting him to proceed with some public works. His Excellency admitted the existing distress, and even expressed his opinion that it would increase, but stated that although Parliament had authorised the works, it had not provided the funds for that purpose, and he declined to borrow money without a Parliamentary sanction or a public guarantee. He said either a special session of Parliament must be convened, which he considered it expedient to avoid, if possible, or the men of affluence in Cape Town should guarantee their payment of a certain amount, say £10,000, which the Government would then borrow, and at once set about some public work for the relief of the unemployed. The deputation that waited upon his Excellency agreed that the latter course would be the better, and a committee had since been employed in obtaining the names of guarantors. His Excellency said that there would be no real risk, as Parliament would be sure to grant a vote to relieve the guarantors of their responsibility.

INDUSTRIAL EXHIBITIONS.

BIRMINGHAM.—From the closing report of the Birmingham Industrial Exhibition we find that the total weekly expense for wages and gas was £22 18s. 6d. per week, making a total for the eight weeks of £183 8s.; the cost of the concert was £67 8s.; and of the fiery fountain, exhibited on thirty-three occasions, £75, making a total of £325 16s. The receipts from cloak-room, church, banks, and catalogues were £277 11s. 9d. The admissions during the whole period were, by family tickets, 18,475; season tickets, 13; presentation tickets, 960; schools, 2,500; by payment at door, 134,697; total, 156,645; and assuming that 4,000 were present on the two first days, it made a total of 160,645. The total receipts from all sources were £4,094 5s. There were 623 exhibitors, and the jurors awarded 13 silver medals, 72 bronze medals, and 118 certificates—total, 203, or one prize to every three exhibitors. With each bronze medal the committee had awarded a certificate framed and glazed. The committee held 273 meetings, and after much consideration they had decided that the sum of 200 guineas should be divided among seventeen members distinguished for their zeal and activity, and that 50 guineas should be placed at the disposal of the honorary superintendent; and twenty-nine other members of the committee had been awarded a silver medal with buckle and clasp; making the entire sum expended on the committee £291 10s. The loss accruing from damage during the Exhibition was about £20, and 6s. 6d. was taken in counterfeit coin.

GATESHEAD.—An Industrial and Amateur Exhibition is to be held here in March next. The promoters have met with every encouragement, and their efforts will, in all probability, be crowned with the fullest measure of success.

MANCHESTER.—The Exhibition of Arts and Manufactures for Manchester and district, under the management of the Art Workmen's Association, will be opened in February next, at the Royal Manchester Institution. About £100, subscribed by patrons, is to be distributed in prizes in the various departments of wood, stone, and ivory carving; models in plaster and terra-cotta; ornaments in wrought and cast metal; decorative painting; ornamented and stained glass; designs for and examples of furniture; designs for textile fabrics; mechanical models; improvements in philosophical instruments; improvements in photography. The prizes will be given to workmen only, and the donors will withhold the prizes in any department where the adjudicators think that sufficient merit is not exhibited. Special prizes for apprentices will be given by the Association.

MANCHESTER.—The City Road Workmen's Industrial Exhibition has proved successful, being visited daily by large numbers of working men, the charge for admission being only twopence.

APPOINTMENTS.

TEN JUNIOR APPOINTMENTS in the engineer establishment of the public works department in India will, during the present year, be open to public competition. A competitive examination will accordingly be held at the India Office in the month of July next. Full printed particulars of the conditions on which candidates will be admitted to the examination may be obtained at this office, on application, either personally or by letter, addressed to the Under-Secretary of State for India, India Office, London, S.W.

GOVERNMENT PHOTOGRAPHERS IN INDIA.—To meet the requirements of the survey department in India, the Government of India, at the instance of the Surveyor-General, has submitted a proposition to the Secretary of State to train up eight European gentlemen in England in the arts of photography, photo-lithography, electro-typing, &c., for service in India. On their arrival in this country, those gentlemen will have to remain on probation in the Surveyor-General's Office at Calcutta for a period not exceeding eight months, during which time a subsistence allowance of 200 rupees a month will be allowed to them. After the expiration of the period of probation, they are to be posted to different places in India, on a salary of 800 rupees each per mensem.

PRIZES OPEN TO COMPETITION BY WORKING MEN.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS: PRIZES FOR IMPLEMENTS.—The Council of the Society of Arts offer the undermentioned prizes (amounting to £50) for subjects exhibited in Section IX., under Classes 231 and 232:—Half-sized model, showing the best principle of construction for a tent for horticultural exhibitions, capable of being extended by a multiplication of the parts exhibited; a prize of £10. The best transplanting machine for weights of eight tons and upwards; a prize of £10. The best transplanting machine for half-ton weights and upwards to two tons; a prize of £5. The best method of ventilating plant structures, to be shown by a model; a prize of £5. The best garden wheel-barrow in principle of construction; a prize of £3. The best sun-shade for garden-seats; a prize of £3. The best guard for protecting young trees from animals in parks, orchards, and pleasure-grounds; a prize of £3. The best instruments for working to levels and slopes in garden-ground work; a prize of £2. Earthenware boxes for edgings, capable of producing any length of straight and curved lines for borders in conservatories; a prize of £3. Ornamental flower-pots of large dimensions, of common red clay, for specimen plants, and for terraces; 1st prize, £3; 2nd prize, £2; 3rd prize, £1. The arrangement of all articles shown in classes 231 and 232 must be completed by Monday, the 21st of May, 1866. Such articles must be entered on or before May 1. Intending competitors should apply to Mr. R. Dean, 1, William Street, Albert Gate, W.

THE ARCHITECTURAL MUSEUM offers some additional prizes to art-workmen this year. The Council of this body offer a first prize of £5 (given by the Architectural Union Company) for a boss modelled in clay, representing King David with his harp—the boss to be not less than nine inches over, and to be original in design. The Council offer a second prize of £2, and will adjudicate both. Also prizes for stone and wood carving, silver work, translucid and opaque enamels, and marble mosaic; the particulars of these competitions to be obtained of the Secretary of the Architectural Museum. In addition to the above, certificates of merit will be given in deserving cases. All objects sent in for competition must be sent to the office-entrance of the South Kensington Museum, by March 1 next. The objects will remain the property of the workmen or their employers.

THE ART DIRECTORY of the Department of Science and Art has been published, and states, among other matters of interest, the following particulars of prizes to be offered in competition to all the Schools of Art in the kingdom. The prize list will include ten gold medals,

distributed as follows:—1. For the best study from the antique, in chalk, monochrome, or modelled; 2. The best example of painting a group of still life from nature, in oil or water-colour; 3. The best study of the figure from life, in colour, chalk, or modelled; 4. Six medals for the best designs in the three classes—Architectural Design, Surface Design, and Plastic Design; 5. One medal for a work of a class not included under the above-named heads. Twenty silver medals, of which part will be given to the second best of the various subjects to which gold medals are assigned, and the rest to meritorious works in the same or the best works in other subjects of study. Fifty bronze medals to meritorious works in any of the various subjects of study. Messrs. Chapman and Hall are the publishers of the Art-Directory. It contains instructions and definitions of the greatest importance to students in the Art Schools and Art Masters.

FOREIGN ITEMS.

M. CRESPOL DELISSE.—The death of M. Crespol Delisse, who originally introduced the beet-root sugar manufacture in France, is announced. He was in receipt of a pension from the Government, as a reward for the services he had rendered to national agricultural industry.

MANUFACTURES AT BROUSSA.—This town, situated at the foot of the Bithynian Olympus, in Asiatic Turkey, though represented by many modern books as only a vast heap of ruins, has, on the contrary, almost completely recovered from the disasters of earthquake and fire from which it has suffered within the last ten years. The eastern quarter especially, which was almost totally destroyed, has been rebuilt in the European style, with wide streets and a fine boulevard, ending in the new road to Guemlek. The principal industry of Broussa is the silk manufacture, which has been carried on there for many years past, chiefly by European houses. The town contains 55 spinning-mills, employing between 2,000 and 3,000 workwomen, most of whom are of Greek extraction. Recently several hundred Turkish girls have also been employed, owing to the confidence inspired in families by the wives of the manufacturers. In the Imperial works the Mussulman women form about one-tenth of the whole, and about five-sixths in an establishment directed by M. Brot, a Frenchman. The Mussulman women are well conducted and frugal; their earnings, which amount to 4 piastres a day in winter, and 7 piastres in summer (1fr. and 1fr. 75c.), are a great help to their families. In eighteen months or two years young women save what is thought to be a considerable wedding portion in their country, and soon find husbands. Lastly, a thing not to be overlooked, the too numerous class of divorced women find in these establishments a means of existence which keeps them out of the way of temptation. In the workshops the women are grouped according to race, but the most kindly intercourse exists between them. The mulberry tree is abundant in the environs of Broussa, where it grows on a light soil, under the shade of the olive.

THE MUSÉE RÉTROSPECTIF.—The fine collection of works of art which has been on view in Paris during the autumn, and which was only closed at the beginning of last month, deserves some record. The plan followed was precisely that of the loan collection formed in the South Kensington Museum in 1862. The spacious *salons* of the Palais d'Industrie are well adapted for an exhibition of this sort; but, from the temporary character of the wall cases, and often from overcrowding, the general effect of the whole, and the facility of examining the different works of art, was by no means equal to the admirable arrangements made at South Kensington. The Museum had many important additions made to it after it was first opened, and to this cause must be attributed the want of a complete catalogue; a commencement was made, but the second part only appeared a few days before the closing, so that for all practical purposes it was useless. The collection was intended to embrace the whole range of the art from an early period, but the strength of the Museum consisted in works of the mediæval and renaissance periods. The taste for collecting works of art, and the means of paying high prices for them, are of comparatively recent growth in France. The pursuit of art objects is now, however, just as eagerly followed in Paris as in London, and this has given rise to a class of collectors, half amateur and half dealer, who estimate the money value of their acquisitions quite as keenly as the art value. It may be remarked that in France we do not meet with those heirlooms and objects of artistic value which are preserved among our old families, the turmoil of the Revolution having completely dispersed everything of this kind from the old chateaux, as well as the greater part of the contents of the church treasuries.—*The Gentleman's Magazine.*

NEW SYSTEM OF DRAWING.—M. Hendrickz, a Belgian painter, and inspector of the drawing classes in the communal schools of Brussels, has been for some time in Paris making experiments, under the direction of the Minister of Public Instruction, in teaching working men, utterly ignorant of art, to draw, after a method of his own, which has proved highly successful in Belgium. A class of fifty adults was formed in August last, at the Lycée Bonaparte. The pupils included young men studying under the Polytechnic Institution, clerks, engineers, and fitters employed by the Western Railway Company, and other workmen. One only of these had any notion of drawing, yet, after twenty-two lessons of one hour each, it is reported that all were able to execute complicated drawings with firmness and taste. The Minister has decided that the experiments shall be continued.

ART MANUFACTURE CO-OPERATIVE SOCIETY.—A co-operative society among the manufacturers and art workmen of Paris, engaged in the production of works in bronze, cast iron, zinc, and silver, has just had an exhibition of the productions of its members, for which space was granted by the directors of the *Conservatoire des Arts et Métiers.* Twenty prizes, and as many honourable mentions, with medals, were awarded for modelling, chasing, ornamentation, drawing, founding in bronze and iron, turning, and mounting. This association also appoints delegates, who act as arbiters in cases of disputed copyright in works of industrial art. M. Crozatier, a well-known bronzist, has left, by will, a considerable sum of money for the foundation of an annual prize, to be given to the most distinguished working chaser in metals. The first competition for this prize is about to take place, the pieces having been received at the Hotel de Ville up to the 20th of December last.

Correspondence.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE BIRMINGHAM EXHIBITION.

To the Editor of the WORKING MAN.

SIR,—The letter of Mr. James Gillman, which appears in your paper of the 13th inst., would pass, as far as I am concerned, without comment; but it would be an act of injustice to the committee to let it pass unquestioned. His first statement is, that "£1,000 was guaranteed in prizes." No particular sum was guaranteed for prizes. As Secretary to the Guarantee Committee, I can vouch for my assertion. Secondly, no exhibitor was ever given to understand, by word or deed of the committee, that such a sum, nor any *specific* sum, would be given for prizes, but "that prizes would be given." Again, he states there was a surplus of £3,000. There never was such a surplus in existence, unless in the imagination of Mr. Gillman.

The intrinsic value of prizes given was more than that given by any working man's exhibition in England. Although Mr. Gillman was not fortunate enough to obtain one, none knows it better than Mr. Gillman. Rule 4, which was extensively circulated among intending exhibitors, informing them that "the exhibitor was to bear all risk of loss or accidents;" yet in spite of such rules, the committee, from good motives and kindly feeling towards exhibitors whose goods had (by no act of the committee or its managers) been damaged, either by visitors or removal, awarded such recompense to them as in their judgment they saw fit.

The statement of goods being stolen from the Exhibition, is a libel upon the inhabitants of Birmingham and the surrounding district. The only articles being reported to the committee as stolen, consisted of a small knife and a small kettle, the exhibitors being recompensed by the committee for their loss.

The complaint of the manufactured goods being exhibited at Birmingham, the committee are not responsible for. I very much question if an exhibition would be worth visiting, if they were to be excluded with that rigour which Mr. Gillman advocates. Finally, Mr. Gillman states he has "no other medium" to pour forth his complaints. The local press have refused letters and advertisements from Mr. Gillman's "Committee of Discontented Exhibitors." The "Exhibitors' Committee" then attempted to publish a "A Memorial Volume." The printer submitted a copy to his solicitor, who advised him to burn every copy, which was done; yet Mr. Gillman says it "has been most unfairly suppressed." The surplus, after all necessary expenses are paid, will be given to the charitable and educational establishments of the town, not divided amongst the exhibitors, as suggested and desired by "the Discontented Exhibitors' Committee." I am, sir, yours respectfully, JOSEPH EVERARD.

90, *Ravenhurst Street, Camp Hill, Birmingham.*

[An abstract of the report of the Committee of the Exhibition is given in page 61.]

THE PEABODY BUILDINGS.

To the Editor of the WORKING MAN.

SIR,—As a statement has been made in the *Morning Star* of the 18th inst., which nearly affects every tenant of the above Buildings, will you kindly permit me, as an old tenant, through the medium of your paper, to publicly make known several grievances under which we labour, and to seek to obtain that redress which we have tried in vain to obtain elsewhere? Mr. Somerby, the Secretary to the Peabody Trust, has stated in the above paper, that the tenants are as perfectly their own masters, and free from intrusive interference, as though they lived in the next street. Now this is far from being the case. We are placed under the control of a superintendent, who is possessed of almost unlimited power, inasmuch as we are given to understand that the trustees cannot permit themselves to be annoyed by complaints, except through the superintendent. The public are told that there have been no complaints, whereas complaints are continually made. There are very many things that require an immediate alteration. The closets on the lower flats are open to people from the streets, and are frequently shockingly dirty. The tenants are expected to clean after those from the streets, as well as those in the building. It is true we have ovens and boilers, which would be a very great acquisition; but the ovens are so small as to be perfectly useless to families; while the grates are so large as to ruin us in firing, and most of the heat goes up the chimney. The cupboards are mostly miserably small and dark. The walls of the rooms are bare brick, with one coat of white-wash, which soon becomes dirty; but they are never fresh done unless for new tenants; and if any of the tenants change rooms, they have to pay 1s. to the porter to clean the walls. There is a bath-room in the building, but it is so dirty it is almost impossible to use the bath; and every bath costs 4d. for fuel to warm two coppers of water for each bath, besides the inconvenience of having to drag the warmed water in pails right across a long drying-ground, from the laundry to the bath-room. When all things are considered, the rents are too high, for the rooms are inconveniently small, and the shops use heavy sewing-machines, which not only rock our rooms, but the incessant noise is intolerable. But with all these drawbacks, there is *one* benefit that counterbalances a great deal, which is the perfect security of our furniture.

In asking you to give publicity to these statements, we are not actuated by any other feeling than a desire for justice. We likewise hope that Mr. Peabody himself may see our several causes of complaints, for we sincerely believe that he desires to see those happy for whose benefit he has given so liberally, and that through our complaints being made known, the trustees may be at last induced to inquire into them.

Respectfully apologising for the length of this letter, I subscribe myself, yours obediently, E. FREEMAN.

Peabody Buildings, Shoreditch, January, 1866.

The undersigned have asked permission to affix their names:—W. OWEN, 11, B flat; J. LYNES, 36, E flat; T. SPINING, 60, H flat; E. FREEMAN, 6, A flat.

[We have omitted some passages of a personal character. We hope that the trustees only need to know that such complaints are made, to induce them to institute most searching inquiries into the truth of the allegations, with a view to a remedy.]

JOURNEYMEN HAIRDRESSERS.

To the Editor of the WORKING MAN.

SIR,—Allow me in the first place to express the satisfaction I feel in perusing the first number of the WORKING MAN, and the general indication of the work in regard to what it will be; and in the second, "to tell my own tale" (as your correspondent observes), so that this may be one item the more to contribute to your general knowledge of the every-day life of the working man.

Permit me to observe that the few lines I address to you are not written in a complaining or grumbling disposition, but merely with the sole object of finding out some means whereby the every-day life of my own and similar professions can be improved, without injury to our employers.

I fancy I see you smile as I inform you that the profession I allude to is that of a journeyman hairdresser. All that you know of him is when you pay 6d. for that fidgety operation of having your hair cut—that on the whole he is actually an agreeable fellow, and you cannot see that he has anything to trouble him. But read on a little further. I am coming to the main subject of my letter.

Some time ago I went to be examined by the doctor appointed for me in answer to my application for insuring my life in the Government Insurance scheme, and in answer to an inquiry, I told him my profession. "I thought you were something of that. I cannot say you are quite up to the mark; you require more out-door exercise, regular diet," &c. &c.; just the very thing we journeymen do not get. And now I have got so far, you will begin to think I want to make out that the profession of a hairdresser is an unhealthy one, but I do not. What I want to infer is this—that our profession, and many others, are made injurious to the men through the unthoughtfulness of the employers, and even the public. For instance, in our trade we have workshops, and these workshops are places in which the men assemble during the interval of business in the gentlemen's saloons or the ladies' hair-cutting room; and while we are so assembled, we are employed either at wigwork or cooking our food. You say directly, "Don't you have a dinner hour?" No; and there are very few places, indeed, where we can get even half an hour. Well, these workshops are, almost without exception, underground; consequently, we have to burn gas for light, and have little ventilation, mostly none. Perhaps you will be surprised when I tell you that in some of our shops there are twenty to thirty hands employed—and how? Why, as I have stated, in these abominable workshops, or else in the rooms attending customers, with no time, perhaps, to get a particle of food; and this is going on from nine in the morning till nine at night. And what is the result? Improper light, impure air, irregular diet, all of which, no doubt, could be remedied with a little management.

Could not employers combine to have a more regular system for their assistants? Could not the public comply with the early-closing movement, and let us have less hours for business? Could not working men cease going to shaving-shops on a Sunday, and relieve that class of our trade? Are all shopkeepers' assistants doomed to this irregular life? Anyhow, I am afraid most shopkeepers' workshops are underground in London; and if there is any place in the house not fit for anything else, it is made the *workshop* of; and in London very few shops have any back to them, consequently, down-stairs is used for the workshop. And what is down-stairs?—why, the principal sinks and drainage of the house, the dust receptacle, &c.

A JOURNEYMAN HAIRDRESSER.

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Working Men's College

BUILDING FUND.

STATEMENT BY THE COUNCIL.

45, Great Ormond Street, December, 1865.

This College was founded in 1854. The students are, for the most part, working men, and the teachers are, in general, members of the Universities and of different professions, or those who have themselves been students in the College. Its purpose was and is to unite these classes together, by associating them in the common work of teaching and learning. It provides instruction at the smallest possible cost (the teaching being almost wholly unpaid) in the subjects with which it most concerns English citizens to be acquainted, and thus tries to place a liberal education within the reach of working men.

In carrying out these objects we have had some measure of success. The number of students was, at the end of the first term, 145; it is now 509. With the increase in the number of students has come an increase in the number of classes, and for some time past we have been sorely pressed for space.

We want chiefly these things:—(1) A room or rooms for the Art Department. [No department of our College has been more successful than our Art Classes, carried on from the first under the general supervision of Mr. Ruskin.] (2) A moderate sized hall or room for general meetings, lectures, and social purposes, capable of containing some 300 or 400 persons. (3) A better room or rooms than we have now got for the Adult School. (4) A room to contain a Museum, and serve as a Natural History class-room. (5) More small rooms for classes.

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F. D. MAURICE, Principal.

Contributions may be sent to the London and County Bank, Oxford street branch ("Working Men's College Account"); to the Secretary, at the College (P. O. Orders to be payable to Thomas Hughes); or by cheques payable to the order of the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple, or to any member of the Council of Teachers.

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[7

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TO EXHIBITORS.

Contributions of Skilled Workmanship or Amateur Productions will be accepted from all parts of London, the Provinces, Scotland, and Ireland.

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regulated in value according to the success of the undertaking, will be awarded for the most meritorious productions.

THE SALE OF ARTICLES

exhibited will be especially encouraged, and the price, if desired, may be affixed to the objects. An office will be opened in the building for the transaction of this business.

THE GREAT HALL,

the largest in London, will be fitted up for the display of industrial objects, no charge being made to exhibitors for occupying space.

SMALL WORKSHOPS, WITH AND WITHOUT STEAM POWER,

will be fitted up round the building. These will be let, under special arrangement, to persons who may desire to manufacture and sell articles during the Exhibition.

THE MINOR HALL

will be fitted up as a Picture Gallery and Fine Arts Court. Here will be exhibited, under the sanction of the Lords of the Committee of Council on Education, a series of works of art illustrative of the instruction afforded in the Government Schools of Art throughout the United Kingdom.

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It is contemplated to grant the use of the Lecture Hall to Trade and other Societies, for the purpose of enabling workmen to invite employers or friends to conversational meetings; also, under special conditions, to Amateur Musical Associations.

FLOWER SHOW.

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Rotherhithe—Mr. Henry N. Smith, 208, Rotherhithe, S.E.
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St. John's Wood—Mr. Burnham, 8, Ordnance Road.
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City of London Working

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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

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[REGISTERED FOR TRANSMISSION ABROAD.

VOL. I.—No. 5.] SATURDAY, FEBRUARY 3, 1866. PRICE 2D. STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.

SAW MAKING.

Sheffield Saw Manufacture.

THE saw is of great antiquity. It was known to the Egyptians and other early nations, and traces of its early use have been discovered in nearly every country where the arts and sciences have made the least progress. In England, Sheffield—the metropolis of our manufactures in steel—has had the saw-making almost entirely to itself, many hundreds of skilled and intelligent artisans being continually employed in this important branch of industry.

In former times, there was little variety in the shape of the saw, which in general appearance strongly resembled the *bow-saw* used by the carpenters. At the present day, however, the different kinds of saw—such as the *cross-cut-saw, pit-saw, frame-saw, ripping-saw, hand-saw, panel-saw, compass-saw,* and *sash-saw*—are almost endless; the making of each kind of saw forming, as it

were, a distinct trade or occupation. The common description of saws are made of rolled iron plates, hammer hardened, and planished upon an anvil, whereby they attain the requisite degree of stiffness and elasticity. The better kinds of saw are made of shear or cast steel. The steel, which has been prepared in thin sheets, is cut—as shown in our first illustration—into strips of the required size, which, after the edges have been smoothed and levelled by careful filing, are handed to the grinders to roughly prepare them for cutting the teeth. Much has been said respecting the unhealthiness of the grinding processes, but the saw-grinding is stated to be far less detrimental in its effects upon the health of the workers than are the other descriptions of grinding. Dr. J. C. Hall expressly states saw-grinding to be a comparatively healthy occupation. "The men," says he, "stand at their work, and, consequently, the lungs are not so compressed as when the grinder, sitting on his horsing, bends forward for many hours each day in other branches of the trade." The real danger—one, in fact, from which none of the grinding processes are exempt—consists in the flying of the grindstones. The stone, while revolving at a fearfully rapid rate, will sometimes fly in pieces, the fragments crushing and destroying everything in their way. These accidents occur from flaws in the stone, or from the defective manner in which it is fastened on the axle. Fixing the stones on the axles by means of iron plates, instead of wooden wedges, which are liable to swell from moisture or the heating of the iron axle, is considered to be the best safeguard against such accidents. In America the same processes are performed by machinery; but, according to Mr. Ibbotson, a Sheffield manufacturer, the operatives of the town will have nothing to do with work thus prepared. If this statement be true, it is to be regretted, because it will gradually give the foreign workman an immense advantage over the Sheffield artisan.

When the strip of steel has been ground smoothly on both sides, it is given to a workman, who, by means of a die-cutter in a fly-press, rapidly cuts the teeth, one or more at a time, with astonishing precision. This process forms the subject of our second illustration. After one or two subsequent minor processes, the saw is again hardened and tempered, and then it is handed to a grinder to be ground for the second time. The grinding, both on this and the previous occasion, is performed with the assistance of water, which prevents the particles of dust rising from the stone, as in those cases where water is not used, as in razor or knife-grinding. But whether the process be wet or dry, the grinder is exposed to the danger of inhaling air laden with fine dust while "hacking" or "razing" the grindstone. These processes are rendered necessary by the circumstance that the continued grinding of the saws has the effect of rendering the surface of the stone so smooth that it will not "bite" or "hold;" hence the surface must be roughened either by "razing"—that is, by holding a bar of steel to the stone while revolving—or by "hacking," which consists in roughing the grinding surface with a pickaxe. Sometimes this latter operation has to be performed twice a day, especially if the stone be of unequal texture, as in such a case the softer parts would wear out more rapidly than the harder portions, thus occasioning the stone to lose its true circular shape.

The grinder presses the saw to the stone by means of a board, which he holds to the upper surface of the saw, and against which he presses with all the strength of which he is capable, for the purpose of grinding the surface of the saw as evenly as possible. To economise his strength, the grinder stands upon tiptoe, his feet resting on planks raised on each side of the "horse," or seat, and bends slightly over the stone, which revolves with startling rapidity. While thus engaged, his hands, arms, breast, and knees are all, more or less, brought into action, thus occasioning some of the grinders to present splendid examples of muscular development. While grinding one end of the saw, the other end is made to rest on a kind of *trapéze* at the side of the stone, whereby the grinder is relieved from the task of supporting the weight of the saw. The smaller saws are ground by the men in a sitting or stooping position, as shown in the larger illustration.

The face, hands, and clothing of the grinders, during this process, become covered with a yellowish stone incrustation; but the particles of stone being held in solution by the water, they are to a great extent prevented from entering the mouth and lungs; hence the comparative healthiness of the saw-grinding trade. After being thus ground, the saw is found to have lost much of its flatness and elasticity. To restore these, it is subjected to a fresh hammering, and afterwards to the action of a coke fire, which renders it of a pale brown or straw colour. The surface is smoothened by being passed lightly over a grindstone, and finally polished with a fine hard stone, and a glazing-wheel covered with chamois leather and emery, or a wooden wheel known as the *hard head*. The saw is then cleaned by women or boys, and given to the *setter*, who adjusts the shape and curves of the teeth in the manner required: subsequently the teeth are sharpened, and then the saw is ready for use. In saw-grinding the heavy nature of the work prevents any extensive use of children, as in other trades, it being stated that no lad under the age of fourteen is allowed to mount the "horse." The condition of the grinding-sheds is, however, far from being what it should be. The floors, frequently of earth, are often sloppy with wet, from which, as well as from the draught and cold, the grinders naturally suffer, sometimes to a considerable extent. This might be avoided by the use of properly-paved floors, with drains to carry off the surplus moisture. Indeed, there is no reason why a saw-grinding shed should not be as clean and smart as the factory-rooms at Saltaire, or one of the other model industrial establishments which have recently been erected in the northern manufacturing districts.

Sectarianism and Party Politics in Working Men's Clubs.

The following letter, and Mr. Solly's reply, being on a subject of considerable interest to the managers and members of clubs, it is thought that these remarks may be useful to other societies besides the one originally addressed. It was on this question that the first Working Men's Institute in the kingdom—founded by the late lamented Rev. F. W. Robertson, at Brighton—suffered mournful shipwreck; and there is no greater difficulty, in many cases, with which Working Men's Clubs and their promoters have or will have to contend.

"———, Jan. 12th, 1866.

"Sir,—Will you kindly oblige me by saying if the Club and Institute Union would interpret our 1st rule * as preventing us from receiving any contributions of books or periodicals of a religious tone—say a book of sermons, or any Protestant publication.

"I remain, Sir,
"Your obedient Servant,
"———, Hon. Sec."

"Working Men's Club and Institute Union,
"150, Strand, London, W.C.
"Jan. 18th, 1866.

"Dear Sir,—I am at all times very happy to answer inquiries concerning the management and well-being of Working Men's Clubs. The question in your note is an important one, vitally affecting the very existence of these societies. It is a difficulty, moreover, which has frequently occurred, and naturally will often again arise.

"The general principles which we think should guide the managers and promoters of clubs in this matter, are as follows:—First, since the clubs are intended to afford certain social benefits to all working men, without distinction as to their religious or political opinions, holding itself entirely neutral and impartial on all these subjects—as well as on various other controverted questions, such as Teetotalism, Trades Unions, Strikes, &c.—the money contributed by members, whether ordinary or honorary, should not be spent either, in a large or small amount, on books or other publications advocating views on either side of such topics. It would be manifestly unjust to purchase those on one side and not those on the other. But even if both were bought, this would still be a perversion of the objects for which the contributions were given. Nothing like political, religious, or social propagandism and controversy should be allowed in a club; otherwise, its purely neutral character, its welcome for persons of all sects and parties, would be destroyed. But, Secondly, it is quite a different matter when, as in your case, books, &c., of a religious character are offered *as gifts*. The money of the society, in that case, is not being expended for any sectarian purpose, and so far no member could feel aggrieved. But then, it is plainly necessary that if you accept presents of books or periodicals, newspapers, &c., advocating one view of controverted subjects, you must also receive them if offered when supporting the opposite view; otherwise, you at once take part with the former against the latter, and destroy your neutrality.

"Now, whether it be advisable or not to accept such gifts must depend, I think, very much on local circumstances, and cannot be altogether decided by general principles. If the gift of a volume of sermons is likely to be followed by the presentation of Tom Paine's works, or the presentation of a Protestant newspaper by that of a Roman Catholic journal, the donors of the first *may* consider it better that neither should be given; or if either the religious work or the secularistic publication entering the club *by itself* were likely to stir up bitter controversy, and convert the peaceful social meeting-ground into an arena of strife, members might feel that the said publication were better withheld. On the contrary, should there be no probability that any of the members would object to the introduction of a particular work or newspaper, and no likelihood of its leading to what could be regarded as retaliation, or to controversy of any kind—if, in short, the publication in question would not be viewed, in all reasonable probability, as a violation of the great fundamental principle of neutrality in such matters—the club would simply be so much the richer, and, perhaps, the members so much the wiser and better for possessing it.

"Clearly, it is necessary that each such case should stand on its own merits, and be finally determined by local circumstances, under the guidance of the above general principles. For what would be a violation of neutrality in one club or in one part of the country would not be so regarded in another; and a publication that would only do good in one club, where difference of opinion on the subject did not exist, might be the cause of controversies in another that would destroy the society. Moreover, the matter that would be deemed objectionable by some members may be in so small a proportion in a particular publication, or may be so mingled with what all parties view as valuable, that they would gladly bear with the one part for the sake of the other. It is impossible to lay down a rigid, unvarying rule that shall beneficially apply to every club, or every book and newspaper. The managers and members of each society have to exercise a faithful judgment, applying the great principles on which clubs are formed as far as they will go, and scrupulously testing every proposal by a reference to them; but as faithfully considering whether the *common good* of all the members might not be promoted by any proposed measure which did not interfere with the neutrality of the club on controverted questions.

"A most important point, I may further be allowed to suggest, is, that every member of a club who feels strongly on any controverted subject in relation to religion, politics, or social science, should carefully guard against viewing the club as a convenient platform or fulcrum, whereon to advance his views on those points by direct advocacy, except so far as a discussion class may legitimately, and by common consent, give him a fair opportunity. Unquestionably, a club would afford a capital machinery for making converts, until the process had broken it up (which would probably be very speedily), even as a razor might excellently serve to cut slate pencils. But clubs are not formed for this purpose, and cannot be used to further it without a perversion of their objects which would be as dishonest as unwise. There are, or ought to be, suitable agencies for all desirable direct proselytising, but clubs are certainly not among the number. Even in discussion classes, the aim should be mutual improvement and educational enlightenment, rather than propagandism and proselytising; and I am strongly of opinion that theological questions had better always be excluded from those most valuable meetings.

* "Rule I.—That this Institution be called the ——— Working Men's Club; the objects of which are to provide instruction and amusement for members, free from sectarianism and party politics."

"Herewith I send you two of our publications, containing passages bearing upon this question, as well as the paper which you asked for, on 'the Conditions and Advantages' of joining our Union, and I sincerely hope that the views I have suggested may help to guide your course aright. I cannot conclude (though I trust it is almost needless to do so, frequently as I have urged the subject in the publications of the Union), without saying that I am profoundly convinced of the inestimable benefit these clubs derive, whenever religious influences can be brought to bear upon them to promote the common good—*not for controversial purposes*, but for the development of men's spiritual nature, cultivating filial reverence and brotherly feelings, and thus preparing for more specific religious teaching elsewhere. When this can be done in an unobtrusive manner, with the full concurrence of the members, or at all events without exciting opposition, or disturbing the general harmony, I believe that great good may be accomplished. By these influences I do not necessarily mean direct religious services, Bible, or prayer-meetings—though I am thankful to know that even these have been held in more than one club by the common agreement of the members, with unmixed benefit attending them;—but I refer more especially to the influence for good which every sincere Christian must always exert wherever he goes, and according to the opportunities legitimately offered to him. I have long been convinced that neither clubs nor any other societies, founded on the idea of mutual benefit, can possibly flourish unless they are managed and worked by persons of high principle, of single-minded devotedness to duty, and who habitually seek that help and guidance, without which we cannot expect the Divine blessing on our work.—Believe me, my dear Sir, very truly yours, "Henry Solly."

Notice to Secretaries of Working Men's Clubs and Institutes.—The secretaries of Working Men's Clubs and Institutes who have not yet sent replies to the application of the Council to them for information on various points of general interest, are respectfully reminded that much of the value of such information depends on its being furnished about the same time as that at which other clubs are affording it. The Council are prevented from making use of the portion received, by waiting for that which has not been sent; and in earnestly requesting committees and secretaries kindly to forward them the returns filled up as soon as may be convenient, they desire to make it distinctly understood that this information is sought simply to enable them to use it for the benefit of the movement in general, and of individual clubs, which depend so greatly for success upon obtaining the experience of other clubs and general statistical facts. The Council trust it is unnecessary to say that they have neither the desire nor the power to exercise any sort of supervision or control, nor to interfere in any way with the management or operations of clubs and institutes, whether affiliated or not to the Union.

TRUE MANHOOD.

You tell me of your thinking man,
Who chops and chews his logic;
Of him who dabbles with the stars,
And matters meteor'logic.
But tell me, can his soul respond
To any cry that's human?
For if it doth, I'll grasp his hand—
"A gallant and a true man!"

A man may stand with kings, or roll
Up to the neck in bullion;
But if his heart be hard and cold,
He's meaner than a scullion.
What are the gems of India? what
The gold of California,
When linked not with a kindly soul?
Vain baubles all, I scorn ye!

I smile at him who boasts his "blood,"
Nor care for any son of them;
There were but eight in Noah's ark,
And I have sprung from one of them.
Then let our standard be unfurled,
With this inscription on it,
"We're brethren all, though some wear crowns,
And some the peasant's bonnet!"

Oh! if a man should heal the grief
That warps and stings another,
Should hang a rainbow in the cloud,
Because he *is* his brother;
Then, though in pomp of pedigree
He count but an ignoble man,
I'll lift him high above the crowd,
And say, "Behold God's nobleman!"

G. S.

Art and Handicraft.

V.—THE LOGIC OF INDUSTRIAL ART.

ORNAMENTAL art, in its relation to manufactures and decoration, has been treated by artist-painters and sculptors, and many art critics, as a matter which could not be referred to any fixed principle of judgment, but was rather a question of personal choice or whim. Yet, at the same time, it was maintained that, in order that the national taste, as applied to industrial productions, should be developed, a national patronage of the Fine Arts, as regards collections of paintings and works of sculpture, was an absolute necessity. The precise relation which existed between these two phases of art has never been distinctly defined, although endless platitudes have been written and spoken on the subject. Many persons, like Haydon, maintained that "the greater involved the less:" in other words, that he who could paint a good picture, or model and carve a good statue, would inevitably possess the power to design, model, or carve a good ornament. This is only a partial truth. In fact, it is only a truth so far as this, that he who can paint a good picture, or model and carve a good statue, is, from the very nature of his education and previous practice, well suited to make a good ornamentist, if he chooses to devote his attention to the *special* study of ornamental design. In other words, having mastered one phase of art, and that, too, which deals most directly with a truthful imitation of Nature, as a basis, he is better qualified than he otherwise would be to take up the question of ornamental art.

Of late years this fact has become more and more recognised by the advocates of national patronage of art and art education—that pictorial and sculptural art is one thing, and ornamental art, in its truest and best, because most useful sense, is quite another thing. There are a large number of artists of great and varied powers in the pictorial and the sculptural who would be quite conscious of making very sorry figures, in more senses than one, if called upon to design ornament for any really industrial or decorative purpose. In fact, experience has shown that the most lamentable failures have resulted in attempts made by artists in what it is usual to call the higher walks of design when they have condescended to attempt the practice of this same faculty of design, when applied to the lower and less dignified walks of art in its application to works of absolute utility. As illustrations, it would not be difficult to point out examples of monuments and drinking-fountains as objects which come most prominently before the general public, which, if analysed upon sound principles of decorative and constructive design, would show how little it is possible for an able painter or sculptor to know of this supposed inferior phase of art, whilst justly enjoying a well-earned reputation in that to which he had specially devoted his attention. In short, the successful study of the pictorial and the sculptural no more qualifies a man for the practice of the ornamental than the knowledge of one language gives the scholar the power to write and speak in another. As, however, the knowledge of one language is frequently a great help, and may in some cases be absolutely necessary to the acquisition of some other language, so the study of the artist-painter and sculptor forms a basis of no ordinary value in the acquisition of a thorough knowledge of the principles and practice of ornamental art in all its phases. In fact, if the time of the student permits, the more fully his practice can be carried in this direction—the main purpose for which he studies being kept in view—the more thoroughly artistic will his education be, and the more capable will he be of grappling with the varied phases of decorative design as they present themselves.

The fact, however, cannot be too strongly insisted upon, and certainly ought never to be lost sight of by those entrusted with the education of the English artisan, or our future manufacturers, that ornamental art requires a special, well-understood, and distinct course of study; that whatever may be the varied character of the designs required for practical use in the various great manufacturing centres of the nation, the precision which comes of a proper study of geometrical proportion—the power of re-production and intelligent conventionalism, which is the result of an earnest and loving study of natural form, especially in the vegetable kingdom, down to its minutest details, can never be dispensed with, without a loss to the future power of the designer.

So far as English designers and art-workmen have been successful in the practice and execution of original designs when applied to manufacture, it has arisen out of a steady devotion of their attention to the special question they had in hand; and this is precisely the course which brought the French and German designers to the position in which they stood some years ago, when they were so much in advance of their English co-workers as to lead to the inference that the character of the education they had received partook more of the character of the education of the artist-painter and sculptor than it really did. One advantage which the French designer and workman had, and still has, over the English artisan-student, is that he is more surrounded by an atmosphere of art, and Paris especially presents many more advantages in the form of grand and noble buildings, statues, galleries of art, and museums, than even London. Of course, the art student in English provincial towns works at a still greater disadvantage.

Nothing need be said here about the inferior position which the decorative arts hold in England in public estimation as compared with the Continent. It is part of the national work yet to be done to equalise this estimation, and in so doing stimulate the ambition and powers of the workman as a student.

In addition, however, to the art-knowledge—that is, the power to express by certain means and in certain materials the ideas of form and decorative details which constitute a good ornamental work—there are certain first principles which should ever be borne in mind in designing and executing such works; for it is to the neglect or misapprehension of these principles that so much bad construction in form, and bad and inappropriate detail in decoration, is chiefly owing. It is, therefore, to these principles attention has now to be directed, since it must, as a matter of course, be assumed that the workman employed on any art work has a given amount of skill in drawing or modelling, or, better still, of both; whilst, as regards the manufacturer and the general public, it is presumed that they take interest enough in the question of the tasteful construction of the objects of which the one is the responsible *producer*, and the other the constant *consumer*, to care to know why a decorative object is of right or wrong form, and the details of its ornamentation are in what is usually called good taste, such taste being simply the exercise of educated judgment, based upon the principle of the fitness of things and the rules of common sense—which is, briefly, that anything made for *use* shall be adapted in form to the purpose for which it is to be used, that the material of which the object is made shall be suitable for the purpose, and that the details of the decorations shall not be contradictory to the character of that material in its natural structure; whilst, finally, the design of the form and ornamentation shall not be of such a character as to involve unnecessary labour, and consequently cost, in its production. In my next I shall formularise these conditions, and endeavour to briefly illustrate their application.

George Wallis.

The Necessity of Labour.—Others have said much, and better than I could do, of the inherent worth and value of labour, in its effects upon the labourer. I will rather ask your attention to the less lofty, but yet all-important view, of the absolute necessity, if we would avoid the most dire distress, of hard and continuous labour in a country like this—an ancient and settled country, a crowded country, one of which the internal resources are necessarily limited at any given time, and which, while it has no doubt large foreign resources, still, by its insularity and remoteness, must always depend very greatly for its well-being upon what it finds at home. It is not so in all countries, nor in all states of society. In southern and tropical climes, in new colonies, in thinly-peopled countries, among nations of simpler habits, hard and constant labour is not found indispensable. But with us it is. Nature is here a kind and willing dispenser of her gifts, but she is also a stern one. She will not give them for nothing: her great Master will not allow her to do so. Labour, and that not blind labour, but skilled and intelligent, must be given for them.—*Lord Lyttelton, at the Opening of the Birmingham Industrial Exhibition.*

Letters from Lancashire, by a Lancashire Lad.

II.—SELF-EDUCATION IN LANCASHIRE.

It would not be difficult to fill page after page of your paper with stories illustrative of the self-education of our operative population. The peculiarity of the work in Royton was such as to make me select it for the subject of my first letter, and I now purpose continuing the same theme by relating facts respecting some of the workmen of Burnley.

Burnley is an important town in East Lancashire, and, like most other towns in this district, it has grown rapidly to its present extent. In 1801 the population was little over 5,000, whilst now it is at least 45,000. The inhabitants are noted for retaining many features of the old Lancashire character, such as may be seen described in the works of Bamford and others. Increase of population generally means prosperity, and of this Burnley has had its share; but at intervals great suffering has prevailed here. Many middle-aged men can relate how, when they were much younger than they are at present, they suffered from want, keener, if possible, than that from which England's grand benevolence has recently saved them. In that old time the rich did not understand or sympathise so much with the poor, and the poor looked upon the rich with apprehension. When hard times came there was no such inflow of funds as there was seen in 1862—3: what relief was afforded was supplied almost altogether from local sources. There was one time of distress, whilst the factory system was in its earlier stage of development, which may be briefly referred to. Then much of the weaving was done at home, and the work was "put out" at warehouses. One bitter winter, work was so "slack," that at every putting-out day many had to return without having a warp to put into their loom, and the competition for such little work as there might be was always very keen. At the warehouse the rule was "first come, first served;" but as it was difficult to secure the strict carrying out of this rule among the mass of half-starved operatives who crowded about the door, these workers themselves devised a scheme which at once exhibited their sense of fairness and their sad condition. A long string was tied to the latch of the warehouse door, and each comer laid hold of this string as near to the latch as possible. In the order in which they stood, finger upon this string, did they enter the warehouse, and take their chance of employment. Early, very early indeed, did they turn out of their homes on those winter mornings, and wait hour after hour for the opening of the warehouse door, whilst their limbs were benumbed by the frost, or their scant clothing, instead of sheltering them from the weather's inclemency, did but retain the bitter cold of rain, or sleet, or snow. Strangers who visited Lancashire during the recent distress, learned that the remembrance of those old days were still fresh in the minds of the operatives, and that the word "dow"—dole—was a reminiscence of them. The shadow departed, and prosperity visited the people again.

Whatever may be said of other portions of the cotton districts, it would seem that the apprehension of much demoralisation, resulting from the recent long-continued dependence upon charity, needed not be felt respecting the operatives of Burnley. Although it cannot be said that the mills of the town are all fully employed—some are stopped, and some are only working part time—it is yet true that there is less pauperism now than was the average for this time of the year in the years preceding the cotton famine. This indicates a return to independence which it is very pleasant to note.

It has been the custom of late, in some quarters, to decry efforts at scientific teaching amongst the working classes. It is urged that after a hard day's work they are unfitted for severe study, and that it would be wiser to draw their attention to the lighter forms of literature, and so educate the taste and the imagination, instead of making abortive attempts to fill their minds with hard facts, or train them to become skilled in languages and mathematics. Whilst we should recognise what of truth there is in these remarks, we ought also to remember that there is something to be said on the other side. Not long ago, statements such as those I have just recounted were made by a gentleman at a prize-distribution in East Lancashire. After the meeting, this gentleman, with a well-known baronet and others, went on to the railway station. Whilst there, the baronet, seeing a group of the prize winners, determined to ascertain what they thought of his friend's argument. He went up to one rather uncouth-looking youth—a diamond in the rough—who had a bundle of prizes under his arm, and asked what *he* thought about the matter. The lad looked up and said, "It con be done, if they've nobbut a mind." That was it. If the "mind"—the will to learn—was in a lad, he could do it. Indeed, they are doing it just now in Burnley very successfully.

The Burnley Mechanics' Institution is almost a model one. Its reading-room is the resort—the exchange—of the moneyed people of the town; its library is used by rich and poor alike; and its class-rooms are filled by lads and lasses from the factories. The classes here have been eminently successful, and this is owing, I feel sure, very much to the tact and skill of a friend of mine, whose name I should like to mention; but who, though still loving to do good by stealth, would yet blush to find it fame. I don't remember attending classes of factory girls anywhere whose education was so advanced, and whose dress showed so entire an emancipation for the evening from factory associations, as the education and dress of these Burnley girls. In the lads' classes there is, of course, more noise, and less regard to outer appearance; but there is also a very thorough attention to the work they are about. From these rooms lads have gone to occupy positions much better than those in which they were born, and it it is a noteworthy fact that true eminence has been won mostly by hard study of physical science, of mathematics, and of languages. I will call attention to a few instances. Whilst I do so, I would ask the reader to remember that to advanced students the class-room is little more than a place in which he may measure his own progress by comparison with that of his contemporaries, and obtain the advice and encouragement of his teacher. The actual work of study must be done in the quiet of home, and in time stolen from rest or pleasure.

I doubt whether it would be possible to relate a more striking instance of self-education than that of a gentleman—he deserves that name, although he is only a factory book-keeper, who manages to sustain himself and his wife on a pound a week—who may be seen almost any night in these class-rooms of the Burnley Institution. The story of his life is a very simple one. He was born some twenty-eight years ago. He does not remember how he learned to read; but his first notions of arithmetic he obtained from his grandfather. Whilst very young, he went to one or two schools, but only irregularly, because, being the eldest child, he had to stay in the house nursing, whilst his mother was at work in the mill. He commenced working mensuration when he was about nine years old, and says that, when he was ten, he had a fair acquaintance with Bonnycastle. He had, also, a passionate fondness for music, and made as much headway with that as with mensuration. He commenced working away from home in his twelfth year—first as a shop-boy, and then went to the mill to learn weaving. It is rather singular that, for some six or eight years after this, his passion for books and study seemed to have departed; but about the year 1854, he began to look round him, and seeing that if he meant to lift himself, either intellectually or socially, it was time that he began, he resolved to enter upon a course of self-instruction. He studied at home for a while under very considerable disadvantages, and then joined the institution classes. His progress was rapid, and he was so careful about obtaining thorough mastery of the subjects he studied, that he never had much occasion to look back regretfully. Since the year 1857 he has competed again and again at examinations, and his success may be gathered from the following list of prizes and certificates which he has obtained:—

1857. East Lancashire Union of Institutes	2nd Class Certificate, with prize of £4.
1858. Lancashire and Cheshire Association of Institutes	3rd Class, English History, and 3rd Class, Geography.
1861. Ditto ditto... ...	1st Class, Mensuration; 1st Class, English Composition.
1861. Society of Arts... ...	2nd Class, History; 3rd, Mensuration; 3rd, Music.
1862. Ditto ditto	English History, 1st Class Certificate, with 2nd Prize (£3); Arithmetic, 1st, and Mensuration, 2nd.
1862. Lancashire and Cheshire Union	Arithmetic, 1st; Decimal Currency, 1st.
1863. Society of Arts	Book-keeping, 1st Class.
1863. Department of Science and Art...	Inorganic Chemistry, 2nd Class, with Queen's Prize.
1864. Society of Arts	Algebra, 1st Class Certificate, with 1st Prize; Mensuration, 1st, with 2nd Prize; Chemistry, 1st, with 2nd Prize; Electricity, &c., 2nd Class Certificate.
1864. Department of Science and Art	Acoustics, Light and Heat, 2nd, with Queen's Prize; Magnetism and Electricity, 1st, Queen's Prize, and Bronze Medal; Inorganic Chemistry, 1st Class, Queen's Prize; Organic Chemistry, 1st, Queen's Prize.
1865. Society of Arts	Animal Physiology, 1st Class, with 1st Prize; Music, 1st, with 1st Prize; Geometry, 3rd, and *Prince Consort's Prize of* 25 *Guineas.*
1865. Department of Science and Art	Animal Physiology, 1st Class, Queen's Prize, with Gold Medal; Elementary Mathematics, 1st Class, Queen's Prize.

And last year he also obtained the following Science Master's Certificates:—

Animal Physiology, 1st Class; Inorganic Chemistry, 1st Class; Magnetism and Electricity, 1st Class; Acoustics, Light and Heat, 2nd Class; Elementary Mathematics, 3rd Class.

Reading over this list of certificates and prizes, and remembering that some of the examinations at which they have been won were very stiff ones, we cannot help seeing that the youth who thus succeeds deserves very great praise. It ought to be remarked that the Science and Art Department's examination in elementary mathematics is accounted so stiff that it is rare for students to enter, and that the gentleman of whom I am now writing is the only person who has carried off the first-class certificate. He does not intend resting with what he has already gained, but hopes to crown them by winning a scholarship in Jermyn Street, either this year or next. I know that my readers will wish him God speed.

During the recent distress, a friend of mine chanced to see another young Burnley operative with one or more of the prize books which belonged to the book-keeper mentioned above. He went and asked how this was, and learned that, being out of work, and unable to purchase books, he had borrowed from his friend, leaving other books of his own in pledge for them. My friend went to see this student No. 2; found that he was a weaver; that, owing to the mill being stopped, he was in a sad plight; and that, instead of depending upon the relief committee for aid, had obtained some little work at a lawyer's office, for which he was receiving 3s. 6d. per week. With this small pittance this young weaver determined to enter into competition for a scholarship in one of our Dissenting colleges; he was wanting books—Greek and Latin Grammars, and Dictionaries—and had borrowed what he could from his companion. He was still wanting the Greek books, and my friend went to a clergyman whom he knew, and who, I am sorry to say, refused to lend to so ardent and so poor a student. But the books were got, the weaver laboured at them, went and won his scholarship, and is to-day in the college; and by-and-by I hope he will exhibit in the pulpit conduct as admirable as that which I have described.

Some five or six years ago there was another weaver attending the classes of the Institution whose success deserves recording. Spare moments at the mill were occupied in the study

of languages; and his overlooker chancing one day to pick up the Greek Testament, which lay in the lad's waste-can, could not help expressing his astonishment that anybody could read the queer characters contained in it. It was more than Greek to him. This weaver lad went and won his scholarship, although he had to compete with an Aberdeen M.A. From a Burnley weaving shed he has transferred himself to a Yorkshire pulpit, and is winning the admiration and esteem of all who know him.

About the same time, another weaver was so successful in his studies as to be appointed to a congregation without any residence at college.

It would be easy to add to the cases I have given, but this is scarcely necessary. The fact that self-education is still pursued in Lancashire as I have described; that even in the midst of that distress for which England felt and did so much, there should be lads so resolute in their pursuit of knowledge under difficulties as even then to win their way to college scholarships—these things deserve to be known, so that a right knowledge may be had of the efforts and aspirations of the best of our working men. This is not the place in which I might properly allude to the political tendencies of the day; if it were, I should like to remind certain statesmen whose voices are now and then heard in the House of Commons, and certain journalists whom I might name, that they could as easily do justice to the great class from which the men I have described above have risen, as they now do injustice. It is easy to sneer at special forms of philanthropy, which may, perhaps, be too obtrusive in their working; but it would, I think, be wiser to look for and recognise the many signs of self-improvement which are manifested on every hand. "Men might be better did we better deem of them;" and if this line from one of our living poets were taken as a motto by some of the critics of our social condition, they might encourage and help where now they only embitter many who are conscious of their own rectitude, and of the severe struggles which they have made in the past, and are making still, to win for themselves the spoils of knowledge, and so enable them to exercise wisely the rights and privileges of citizens.

Working Men's Dwellings.

BEAUCOURT.

THE best solution of the problem of providing working men with suitable dwellings, is being worked out in France in a very satisfactory manner. In previous numbers of this Journal we have shown what has been done at Mulhouse and at Guise; we now propose to show what has been done at Beaucourt, on the estate belonging to Messrs. Japy, Freres, and Co.

This subject has, in fact, for some time past, occupied the attention, in the highest degree, of large manufacturers, companies, and all the friends of industry generally—*cheap workmen's dwellings*, and, as a necessary consequence, the *workman-landlord*.

The workmen's dwellings at Beaucourt are of that class to which preference should be given whenever practicable, inasmuch as they supply an independent house and home, which the dwellings of the character of those at Guise, and the Peabody buildings in London, do not provide. But the choice in these buildings must necessarily be governed by the locality. In cities, where land is of so much value, the barrack-like construction must be adopted; but in the suburbs, the cottage-house and garden system may and should prevail.

The houses erected at Beaucourt, fifty in number, were undertaken by a land society, with a capital of 100,000 fr., which was subscribed by mechanics and working men generally, and foremen and managers of the locality. This kind of co-operation is well deserving the attention of the manufacturer, since it is found that as soon as a working man acquires a house of his own, he gives up resorting to the public-house, and becomes in every respect a better workman.

The project of the dwellings at Beaucourt was planned and worked out by a young draughtsman of the factory, M. Gaufroy, who, having been for some time past much engaged with contractors, masons, and carpenters, has conscientiously and practically studied the question of "lodging the working man." He seems to have solved the problem—a more difficult one than it appears at first sight—of the construction of workmen's houses in a very satisfactory manner, and presenting the following advantages:—

1. Independence of the proprietor or landlord, by isolating his house from neighbouring dwellings.

2. A more convenient and less expensive habitation than that of houses built in *flats*.

The economy of construction is due to the slight foundations, which permit of the walls being made of minimum thickness, and built without employing scaffoldings; and to the suppression of staircases, and the unavoidably lost space in storeyed houses.

The masonry having no great weight to sustain, a depth of foundation of about sixteen inches will be sufficiently solid to bear the walls. The soil being stony below that depth, the cellar requires masonry only on the side against which the ladder from the kitchen is placed. In most of these houses the cellar is simply hollowed out of the rock, without any masonry at all.

By constructing houses in pairs, a saving of £4 (100fr.) per dwelling may be effected. Quadrupled houses increase the cost, in consequence of the dimensions of the roof. But the workmen rightly regard independence as

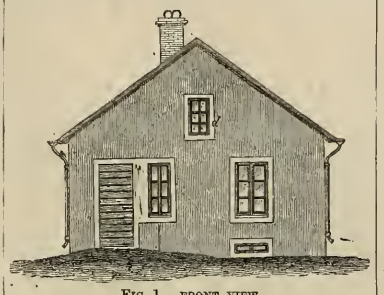

FIG. 1. FRONT VIEW.

a first condition, and wherever double or quadruple houses have been in the market they have failed to meet with purchasers.

All of these houses constructed during the summer of 1864 were sold to workmen and other *employés* for 2,000 fr. (£80) each, and a larger number to shareholders, at 5 per cent. interest, guaranteed by the firm of Japy and Co., and issued half-yearly.

Most, if not all, the houses are now occupied. The visitor is agreeably surprised at the convenience and comfort presented by these dwellings. The firm of Japy and Co. has made a slight sacri-

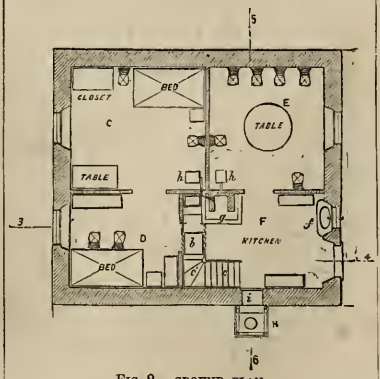

FIG. 2. GROUND PLAN.

fice of land, to enable each landlord to have a garden to the extent of one-tenth of an acre around his house. The grouping together of the houses and gardens forms two charming and picturesque villages, one of which is already in full animation.

Fig. 1 represents one of these houses, viewed in front; Fig. 2 is a plane or horizontal section; Fig. 3 is a vertical and longitudinal section, through the line 3, 4; Fig. 4 is a transversal section, through the line 5, 6.

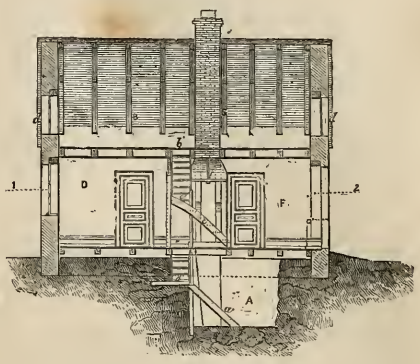

FIG. 3. VERTICAL AND LONGITUDINAL SECTION.

In Fig. 4 A is the cellar, made by an excavation in the soil; it is entered by a ladder, *a*, which, by bending at a right angle, presents an intermediate landing-place, *a'*, under *c'*, which, by the ladder, *c*, establishes a communication between the ground floor and the cock-loft.

The opening to the cellar is closed by the trap-door, *b*, and that of the loft, B, by the trap, *b'*. This loft, provided with two large windows, *d*, being divided, may be made to supply two habitable rooms, if required, as is frequently done.

The largest room, C, on the ground floor, Fig. 4, is 12½ ft. by 11¼ ft., and can, if necessary, contain two beds. The two other rooms, D and F, are of smaller dimensions, and can be used as bed-rooms; or one may serve as a keeping-room, as marked E on the plan, Fig. 2.

The kitchen, F, is provided with a sink, *f*, and a stove, *g*, the funnel of which is placed directly under the chimney, G, into which the other stove-pipes are conducted.

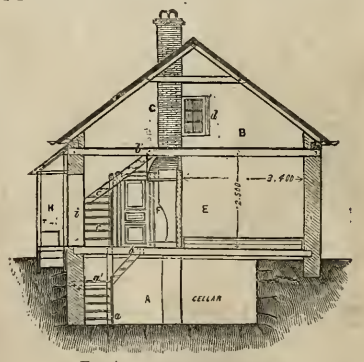

FIG. 4. TRANSVERSAL SECTION.

A door, *i*, in the wall of the kitchen, near the ladder, gives access to the water-closet, H, which is outside the dwelling.

CONTRACTOR'S PRICE, TWO THOUSAND FRANCS (£80).
Summary.

	fr. c.
Earthwork	56.63
Masonry and mortar	1246.20
Carpentry	278.56
Cabinet Work	423.39
Ironmongery	74.52
	2079.30

2079 francs 30 centimes is £83 3s. 5½d.

Buildings on the same plan are now in course of erection at Badevel and at Lafeuchotte.

"ONE more question, Mr. Parks," said a counsel to a witness, who happened to be a tailor. "You have known the defendant a long time. What are his habits—loose or otherwise?" "The one he's got on now, I think, is rather tight under the arms, and too short-waisted for the fashion," replied Parks. "Stand down," said the counsel.

After Work.

ANOTHER WAY OF LOOKING AT IT.

It may be all very well, Mr. Working Man, for my mate Tom to write as he does about what we do with ourselves when we have done work. We are not all so clever as he is, and it does not follow, because he has a taste for reading books, and others have not, that we should not enjoy ourselves in our own fashion, and find our pleasure in something we can understand. Tom is a real good fellow, as true as steel, and has a pleasant way with him that makes everybody like him; but he is just a little bit too good for the rest of us, that's a fact. He will be a foreman before long, and I should not much wonder if he ends by being something a great deal better than that.

Whenever I am in a fix I go to Tom, and he puts things in such a clear light that I believe what he says, though I could no more give the reason for it than I could have built the *Great Eastern* by myself. I wish I was as clever as Tom, I do; but I am not, and never shall be, and there's an end of it.

One good thing I have learned from him, and that is, to leave off bad language. Some of our men do swear awfully, and Tom always has something to say about it; but he does not lecture us, or look as if he was so awfully above us that words which might do for us are too bad for him to listen to, but he manages to make us feel that we are hurting ourselves by using them. This is one of his ways of putting it:—

"Do you know what an adjective is, Sam?" says he.

"Not just exactly, Tom," I says; "but I know you are up to something. What's your little game now?"

"An adjective, Sam," he goes on, "is a word that expresses the quality of a thing. When I say, 'This is a good vice,' or 'a bad hammer,' 'good' and 'bad' are the adjectives. Don't you see, Sam? That was an adjective you used just now, and you had better not use it again, for it's an uncommonly bad one. I was looking through my big dictionary the other day, and by way of amusement I made a rough calculation of the number of adjectives in the English language. There are somewhere about nine thousand; and yet you use only about a dozen, and half of them are such as no decent, truthful man ought to use, for they are bad in their nature, and do not in any way apply to the matter in hand. That's a small stock to put in your shop window, Sam. Try a few fresh specimens."

The very next time a queer word rose to my lips I stopped it in time, and thought of what Tom had said about the adjectives. At first it seemed funny to have to look about for the right word, but I found it at last, and now I know a lot of them.

But that is not what I want to write about. I told Tom quite straightforward-like that I thought he was too hard upon some of us fellows, who treated ourselves to a few hours' amusement after work. I like a stroll in the summer evenings as well as he does, but I do not want to go into the fields. I like the streets best. Some of my mates and I go out for a walk, and we meet some men from other shops, and we find lots to talk about, and we put our hands in our pockets like gentlemen, and just have a friendly pint when we say good-night. Tom goes out into the fields, where there are no shops nor anything to see, and where you cannot get so much as a pig's trotter or a sausage for the old woman's supper, and never meet any of your mates, and he picks up flowers and things, and sticks them into a book.

"What's the good of flowers?" I say to him; "you can't eat them."

He looked at his wife (a real nice woman she is, and no mistake) and said something which I suppose was out of a song-book. I asked him to write it down the next day, for I cannot bear him to think that I don't understand what he talks about, and these were the words:—

> "A primrose by the river's brim
> A yellow primrose was to him,
> And it was nothing more."

That's queer stuff, I thought. Our fellows would laugh if I began to sing that. It won't go to any tune that I know of. Besides, I am pretty sure there was not a primrose at all in all the flowers he had in his hand.

Tom does not care about the theatre, he says. Well, he can stay away if he likes; there's no law to make him go there. But I do like it, and so does my missus. And every now and then we go, and we do not mind the squeezing a bit; it makes us enjoy the play all the more when we get comfortably shaken down into the seats.

We do enjoy ourselves, and no mistake! Bill Jones is there with his young woman, and hasn't he just put on his red and blue necktie! Here come the fiddlers. "Music! music! Play up, and then we'll leave off stamping!" We are in the front row, and look over, and they are just as jolly in the pit as we are up here, and don't mind a bit of orange-peel on their heads, although ginger-beer bottles are past a joke. Up goes the curtain. "Higher! higher!" "Shut up, you fellow, will you? How can we hear?" "Turn him out!" Well, all is quiet at last; all the bonnets that have got loose from the rail and fallen into the pit have been fished for with shawls tied together, and picked up, and we settle down to enjoy the play. It is a stunner. "Rosa Redmantle, the Flower of the Village; or, the Lost Orphan and the Galley Slave"—that's the style! They don't do the "legitimate" at our theatre, and a good job too. There's such a wicked nobleman, who poisoned his cousin ever so many years ago, and bribed the judge with a forged note for £20,000 to say he did not, and that he was the rightful heir to the estates. And now he wants to marry Rosa, who lives with her mother—a poor old widow, who cannot pay her rent—and says he will put the brokers in by noon to-morrow if she will not listen to his suit. There's a situation! "Hold hard, Sarah; if you cry, I shall too!" "Oh! the wretch!" says Sarah; "why doesn't somebody have a broadsword combat, and kill him?" But here comes Rosa's lover, who throws a purse at the nobleman's head, and then knocks him down, and stands over him just like one of the characters a halfpenny plain and a penny coloured, and the fiddles all give a tiddle-iddle-bob together. Rosa's lover has sold himself for a galley-slave, and that's how he got the money to pay the rent; and when Rosa hears it she catches him round the neck, and then falls down, and the scene closes. There's another situation! We are all going to cry, when the funny man—we all know him, and call him Joe, and he bows to the gallery—and a comic milkmaid come on, and sing together; and then the funny man suddenly remembers that he has forgotten to deliver a letter, and when that's read it's found out that Rosa's lover is the real heir, having been carried away by the funny man's second cousin, who was in the hearthstone line, and that his having sold himself for a galley-slave goes for nothing, because he didn't have a stamped receipt for the money. So Rosa and he get married, and the wicked nobleman confesses his guilt, and is shot by six soldiers in cocked hats, who have discovered that he is the Pirate of the Alps.

There; that's my amusement. Tom seems to think it's all rubbish; but as for me, I always feel uncommonly virtuous after it, and as if I could have shot the wicked nobleman myself. It isn't so fine as Tom's books, I suppose; but I cannot understand them, and, as I said before, I like to enjoy myself in my own fashion.

This is a long letter for me to write, and Tom, seeing me look anxious, asked me what I was about; so I told him I did not see why he should have everything his own way, and that I was going to tell the Working Man what I thought about it, but that I was not quite sure about my spelling.

"Quite right, Sam," he said; "nothing like hearing both sides; and, if you like, I will look over the spelling for you."

And he did, like an out-and-out chap as he is, and here's the letter.

Fires in Bedrooms.—Most people, even many intelligent reformers, have the idea that to sleep in a cold room is good—essential to health. It is an error. It is better to have an open fire in your bedroom. The atmosphere is not only by this means constantly changed, but with the fire you will keep the window open, which will add greatly to the needed ventilation. But more than this, with the fire you will have fewer bed-clothes over you, which is a gain, as a large number of blankets not only interferes somewhat with the circulation and respiration, but prevents the escape of those gases which the skin is constantly emitting. Even furnace, or stove heat, with an open window, is better than a close, cold room.

The Workman's Hall, St. James's Back, Bristol.

BY MARY CARPENTER.

Wherever Workmen's Clubs have been most successful, it has been because they were first founded on the actual wants of the population where they have been situated, and then modified to meet those wants, without following any stereotyped plan; and where persons of higher culture have aided to supply them, without lowering the independence of those for whom they were intended, by making them the recipients of a charity, instead of fellow-workers.

As actual experience is of more value than any theories, we will now give the history of one such institution, narrated by one of those who aided in establishing it.

Among the many degraded and neglected parts of the ancient city of Bristol, is one which has long been notorious as peculiarly bad. Though surrounded on all sides by schools and various charitable institutions, and though zealous clergymen, Scripture readers, and Bible women have attempted to make an impression on the neighbouring streets, this has always been left as a sort of Slough of Despond—a sink of the wickedness of the city. The nature of the population of this district has seemed perfectly antagonistic to all improvement. It has the same peculiar features now that it had a dozen years ago, though it has somewhat risen from the barbaric condition in which it was when its inhabitants sallied forth to join the dreadful riots, some thirty-five years since; and the fact that some of the dilapidated houses have been replaced by new and better ones, has considerably improved the appearance of the place. A Ragged School, in the middle of the district, has had considerable influence in raising those who attend it; yet, when their school-days are over, many have been surrounded by their rough acquaintance, and dragged down to their level. What could be done for the district? There were insuperable difficulties in the way of religious agencies, and a feeling of the impossibility of improvement seemed to pervade all who were willing to work there. The best scholars of the Ragged School went off to Canada to escape contamination. A Working Men's Club seemed the only thing that could be tried. A visit from Mrs. Bayly, in May, 1863, inspired us with confidence; and the experience of Miss Adeline Cooper in Duck Lane, Westminster, confirmed us in the belief that St. James's Back, Bristol, might be equally improved. Strangely enough, we then noticed for the first time that there was a large unoccupied space in the same street, where had stood, a few years ago, two old houses, whose tottering state had terrified a lady friend, who was wending her way past them to the school. It had not been built upon, because it was ecclesiastical property, and was to be let on a lease of 75 years, at £25 per annum. There were still on the property eight little houses, forming a close crowded group, dignified by the name of King's Head Court; but it would be a blessing to the neighbourhood to remove them, and give a little more breathing space to the crowded population. So we determined not to think of posterity, or the loss our descendants would incur when the lease was out, but to secure the place, that we may do good in our own generation, being confident that, if we could effect the substantial improvement of this neighbourhood, our descendants would have no cause to complain of us.

A few zealous persons, who felt strongly the great need, determined to use their best endeavours to accomplish the work of erecting a Workman's Hall in St. James's Back—plain, and as inexpensive as possible, but which should contain good accommodation for simple cooking, a comfortable coffee and reading room, a bagatelle and smoking room, a lecture hall and class room, besides baths, a covered skittle alley, and a gymnasium. The plan did not meet with the sympathy among benevolent persons which had been anticipated, for they did not believe in the possibility of its success. Decent labouring men, they thought, would not go to such a neighbourhood, and the inhabitants were too low to enter such a place. But, nothing daunted, we determined to carry out our scheme; and, legal difficulties being at last overcome, and a sum of money borrowed for the erection of the building,

the interest of which would be paid as rent, we decided to commence. In the meantime, we wished to gain experience. A number of working men, several of whom had been scholars in the adjoining evening school, formed a committee with us, and warmly co-operated with us. We determined to take a small house in the neighbourhood, and there carry on operations during the winter, selling to the frequenters of our Hall coffee and soup made on the premises. Some of our committee were very zealous in keeping order and carrying out the regulations, and it speaks highly of their moral control to say, that though our little hall was frequented by some of the roughest in the neighbourhood, no damage was done to the premises, no serious *fracas* occurred, and nothing was stolen—catastrophes which do at times occur in the early days of Working Men's Clubs.

At length preparatory measures were sufficiently advanced for the laying of the foundation stone, which, in compliance with the wish of the committee, was to be a public ceremony. The Mayoress kindly consented to lay the stone, the Mayor presiding, accompanied by several of the magistrates and town councillors. A platform was tastefully decorated for the occasion; a temporary gallery was erected, so that about 200 children from the neighbouring Ragged School, and 60 from a certified Industrial School, might have the pleasure of remembering in later years that they had seen the laying of the first stone of their Hall. Sufficient space having been slightly boarded off for visitors, the remainder of the ground was left open to the inhabitants of the neighbourhood, who speedily filled it. The ornamental trowel, and the bottle containing the daily papers and the coins of the realm, were all prepared. In due time the expectant assembly greeted the approach of the Mayor and Mayoress in the state carriage, attended by the usual civic functionaries. It was a wonderful sight, that, in St. James's Back, such as probably never was before witnessed; it seemed an omen that at length order and civilisation were to invade the dominion of barbarism. And not less striking was it to observe many who had probably last seen these gentlemen presiding over them as judges, now standing side by side with them in friendly sympathy. So our stone was laid, July 9th, 1864. It is unnecessary to speak of all the difficulties and anxieties which occurred before our Hall was actually completed. On the 8th of March of the past year, 1865, our building was completed, and we again requested the sanction of the civic authorities to the undertaking. The Hall, though built very plainly, did certainly look, as stated in the daily papers, "a splendid new building," when contrasted with those around it. The lofty, airy rooms were well decorated for the occasion, and in them were provided various amusements, bagatelle and other games, a galvanic battery, stereoscopes, &c. &c., with music in the Lecture Hall, when the opening meeting should be concluded. The crowds that speedily filled the building were as mixed in their character as could be desired, and it was most pleasing to observe the respectable appearance and deportment of many young working men, who had been anxiously anticipating the opening of the building intended for them. Again, on this occasion, the Mayor presided, with several magistrates and leading men, and the Mayoress of this year also gave us her presence and sympathy. The Mayor opened the hall "for the comfort, improvement, and recreation of working men, especially those of the district where the Hall is situated." Many excellent addresses were made, and received by all with great interest. One who was present could not help adverting to the time, nearly twenty years ago, when in a single room in the neighbourhood the first small Ragged School in Bristol was commenced, and gathered together the neglected children, some of whom were now present as the respectable fathers of well-ordered families. That was the grain of mustard-seed from which this large tree had sprung!

Our first months after this pleasant commencement were not a little discouraging. Before a tone of propriety and good order could be established, the "roughs" took possession, as it were, of the place, and a reign of disorder was introduced which quite kept away respectable working men. From a mistaken idea of adapting the institution to the tastes of those for whom it was intended, entertainments of a low character were introduced, which threatened to reduce our Hall to a level with the very places above which we wished to raise our members; while a want of unity of command made our superintendent incapable of exercising any control, and a lavish expenditure threatened soon to embarrass us as to pecuniary means. It was found necessary to concentrate all authority in three responsible managers, who undertook the pecuniary risk, and, as whose representative, the superintendent should exercise full control. To admit persons to the Hall who were bent on disorder and vulgarity was useless; such a condition of mind not only prevented them from deriving any benefit from being there, but kept away others who would gladly have availed themselves of its advantages. These were at once made to understand that while all were freely admitted, whatever their dress or condition, order was required absolutely, and a breach of it would at once expose to exclusion from the Hall. We contented ourselves with a small number of members during the summer, that a good tone may be thoroughly established. During that time we developed our schemes for helping labouring men and their families to get better food. Good pea-soup is daily prepared, and sold at a penny per pint; it is such as persons of a higher class often eat with pleasure. Many poor mothers come and carry away in a jug two or three pennyworths for their family dinner at home, while for fourpence a dinner is provided which, it is believed, cannot be surpassed in the city for the money. Some benevolent persons have adopted the plan of giving tickets for food at the Hall instead of money, and these are highly appreciated; for a good slice of meat off a hot joint, or such soup as we make, cannot be procured in small or poor households. Care was taken, when erecting the Hall, to arrange a good cooking apparatus, and we can, therefore, execute these plans without difficulty. It is satisfactory to know that though we make the charges for food very low, the receipts from the sale of it cover the cost of preparing it, including fire and attendance, and that the money paid for admission and the hire of rooms nearly defrays the rent and other expenses, except rates and taxes, and excepting, also, the expense of lessons and extra superintendence, which a friend has undertaken for the first year. We hope, therefore, that ere long the hall may be really self-supporting. The following is our programme:—

Workman's Hall, St. James's Back, containing Lecture Room, Class Room, Library, Coffee and Reading Room, Bagatelle and Smoking Room, Skittle Alley, Gymnasium, and Baths. Admission: Daily Admission, 1d.; Weekly Subscription, 3d.; Quarterly ditto, 2s. 6d. Youths under Sixteen Years of Age not admitted. No disorderly conduct allowed on the premises. Classes for Weekly and Quarterly Subscribers only, in the Evenings. Refreshments supplied on the following terms: Dinner, 4d.; Soup, one Pint, 1d.; Cup of Tea or Cocoa, 1d.; Cup of Coffee, ½d. or 1d.; Pudding, or Fruit Pie, 1d.; Cake, or Bread and Butter, 1d.; Roll, Biscuit, or Slice of Bread, ½d.; Cold Bath, 1d.; Warm ditto, 2d. The Bristol Daily Papers and a London Daily Paper in the Coffee Room. Open to the Public: Singing Class once a week; Gymnasium twice a week. Lectures, Readings, and Musical Entertainments every Saturday or Monday Evening during the Winter. Admission to each, 1d.; Weekly and Quarterly Subscribers Free. Temperance Meetings on Wednesday Evenings at 8.30, Admission Free. Application for the Hire of Rooms for Committee or other Meetings to be made to the Superintendent, at the Workman's Hall.

And now, if a visitor goes to our Hall, on any evening, he will find in the reading-room some respectable men occupied with newspapers, while in the opposite room are some rough-looking youths, with others more quiet in deportment, playing at various games, always without gambling, while the window looks out on a long covered skittle-alley. Passing by the window of the kitchen, where refreshments may be obtained, he enters the gymnasium, where wonderful feats are being performed by many young men. On the upper floor some classes are probably going on, or a committee is being held in the library; and in the lecture-hall there may be a penny reading, or a musical entertainment, or a temperance meeting, or on Sunday evenings a religious service.

We hope that, after a time, other agencies will spring up in connection with the Hall—that the members of it will find out new wants, and be incited to fresh efforts for self-improvement. It is better that these should arise naturally, and that a spirit of self-help should be awakened. In the meantime we are thankful to perceive already so much good result, and hope that this brief sketch may encourage others to a similar effort.

The Manchester Free Library.

Passing down Deansgate, with its strange and suggestive mixture of fashionable drapery establishments, cheap clothing depôts, gin-palaces, butchers', bakers', and other shops; its crowds of pale-featured mechanics, noisy hucksters, working men's wives, and groups of individuals belonging to the never-do-well class, we suddenly turn to the right, and speedily find ourselves in front of a building which has a stately appearance compared with the maze of mean-looking dwellings which surround it, and which is known far and wide among the working men of Lancashire as the Manchester Free Library.

The history of the institution is not devoid of interest. Originally it w a Socialist Hall, but, after experiencing many vicissitudes, it degenerated into a dancing academy. Dr. John Watts, of Manchester, at this juncture, devised a scheme for converting it into—among other things—a free library and museum; but, as usual with the promoters of new schemes, he found it difficult to inspire others with the enthusiasm entertained by himself; and the whole affair would have dropped through had not the late Sir John Potter, taking up the idea at the last moment, induced the Manchester corporation to attempt the experiment of a library supported by a local rate, and open freely, with slight restrictions, to all who might choose to avail themselves of its advantages.

From the very first the institution proved a great success, the number of volumes issued in the Reference Library during the first year being no less than 61,080. This was in 1852–3. After that the number of issues gradually increased until 1858–9, when they amounted to 94,916. In the following year they sank to 78,234; rising again in subsequent years, until, in 1861–2, the number of issues was 123,836. In 1862–3 the numbers were 101,172; in 1863–4, 74,010; and in 1864–5, 83,846. The Reference Library is distinct from the Lending Library, and consists of books which are not allowed to be taken out of the institution. It is situated on the first floor of the building, and is approached by a staircase, the walls of which are covered with valuable framed engravings, and other pictures, including portraits of various local celebrities, presented to the library. The apartment in which the Reference Library is situated is of noble proportions—the books being ranged on shelves around the walls. Every accommodation in the shape of chairs, tables, and so on, is provided for the use of the readers, the majority of whom belong to the artisan class. The number of volumes belonging to this department is 35,133. Of the 83,846 readers in 1864-5, 288 were ladies and young women; 6,196 belonged to the liberal professions; 3,935 were schoolboys and students; 271 belonged to the civil and military service; the remaining 73,156 consisting principally of working men, the larger proportion of whom belonged to the cotton-manufacturing industry. Among the other handicrafts and occupations there were 1,521 mechanical engineers, 1,510 labourers, 1,820 carpenters and joiners, 2,025 mechanics, 2,035 compositors and printers, 1,504 painters and decorators, 1,055 porters, and 200 strikers and hammerers. Amongst those not strictly belonging to the artisan class were 8,436 clerks and book-keepers, and 11,200 travellers and townsmen.

On the floor above is an extensive collection of blue books and parliamentary papers. The lending library is situated on the ground floor, the apartment being also used as a news-room. The number of volumes in the lending library and its branches is 33,077. No charge whatever is made for the loan of the books, but the borrower has to procure the guarantee of two respectable ratepayers. The books can be read in the news-room, or taken home, at the option of the borrower. Tales and light reading stand first in the estimation of the readers, then come travels, biography, history, and poetry, followed by natural philosophy, political economy, theology, and science. The number of persons holding vouchers entitling them to borrow books is 10,791. There are also 17 blind readers who make use of the library for the blind, the volumes in which are printed in embossed letters. The number of visitors to the news-room averages 827 daily.

In the basement of the building are lavatories for the gratuitous use of artisans returning from their work; no books being lent out to any one whose hands are not sufficiently clean. This arrangement has conduced greatly to the comfort and convenience of the workmen-readers.

At the branch library in Hulme there are 6,941 books, the number of issues being 95,687. The average daily attendance at the news-room was 338. The Ancoats Branch contains 5,840 volumes, the number of issues being 54,335, the daily attendance at the news-room averaging 618. The Rochdale Road Branch contains 7,191 volumes, the number of issues amounting to 76,556, and the average daily attendance in the news-room, 729. Branches have also been formed, or are about to be so, at Chorlton-upon-Medlock and Ardwick.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

FEBRUARY 3, 1866.

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NOTICE.—*THE WORKING MAN is issued also in* MONTHLY PARTS, *in a Wrapper. Part I. is now ready, price 9d.*

The Political Results of Intelligence.

WITHOUT any breach of neutrality on partisan questions of politics, we may congratulate working men on the political recognition of the fitness of their class, to an additional share in the control of public affairs, which the new Government avow themselves prepared to make. The constitution of this country is representative. That is no partisan fact: it is the common doctrine of all parties of the empire. All persons in this country, whether noblemen or workmen, who occupy a house in a parliamentary borough, the annual rental of which is £10, and pay rates to which they are assessed, are eligible to vote in the election of Members of Parliament. Had the position of the working class since 1832, when this franchise was invented, kept pace with the general increase of wealth, the suffrage would be greatly extended.

Leading political economists—Mr. John Stuart Mill being the first and chief—have drawn attention to this question, but it has scarcely become even a policy of legislation as yet. Though wages have increased, circumstances have combined to increase house rents in so many places, that a comparatively small number of workmen have been raised to the class of voters. If working men, as a class, are not to be excluded from a share in the representation of the country—and both the great political parties in the State have admitted this—we think it is well that some Government has undertaken to deal with the question.

We suppose it may be taken for granted that the dignity of an enfranchised citizen is worth caring for. That it is of some social value is evident from the fact that all who have it hold it, and that disfranchisement is regarded as an indignity, and is always resisted. It being, therefore, a matter of political credit to have a voice in shaping the destiny of a nation, we congratulate the working class that the question is seriously entertained of including an additional number of them in the electoral body. It is no part of our programme to discuss the reasons of such a step, but it is within our province to take notice of the universal reason avowed for taking it. That reason is, that the working class have so advanced in intelligence, in practical good sense, in respect for law, in public spirit, and interest in public affairs, that they have claims as substantial as those possessed by the middle class thirty years ago, for taking their place in the electoral body. This much has been stated so often in Parliament and out of it, both by members of Her Majesty's Ministry and Her Majesty's Opposition, to use the parliamentary phrase, that the conviction of the fitness of a substantial portion of the people to discharge the political duties of citizens, is one of the new unanimities of our time. Undoubtedly, it is very much to the honour of the working class to have won this general recognition.

The late Lord Palmerston was so struck by the temper and endurance of the artisan class of the northern districts of England, during what was not inappropriately termed the Cotton Famine, that he was in the habit of expressing the very high admiration in which he held their political discrimination. Had they habits of organisation commensurate with their general intelligence, they need not have waited so long as they have for the action of the Government in their behalf. Those who have no alacrity for observing progress, and small motive for admitting it, and less for giving political effect to it—so they imagine—are left to arrive at favourable conclusions, and ultimately to take action upon them. Had the industrial classes the inspiration of concert, this would all be changed. Whatever position they had a fitness for and a right to, they would command means to assert. Their wish would have public force. Like a royal invitation, their just desire would assume the form of a command; and what they now receive as a gift, they would be able to assume. In the name of the dignity and sacredness of Labour, we hope the day will come when this will be the case; and we shall be proud if the influence of this Journal shall contribute to it.

In the meantime, we think the industrial classes have good reason to pride themselves on the intelligence they have acquired, and to seek to increase it, and to avail themselves of all the means placed at their disposal to this end, seeing that the amount which they already possess is counted to their credit by statesmen, and considered their highest qualification for political advancement. If to increased general intelligence—quite in their power to acquire—they add the rare, the invaluable, but almost unknown art of association, which so many suppose themselves to understand, and so few display, the future of the industrial class may be, in all honourable respects, whatever they please to make it.

Men who have Risen from the Ranks.

IV.—BERNARD PALISSY.

WE take it for granted that it does not matter to a working man where his brother was born. A true workman is not limited to national sympathies: he has more than a mere geographical respect for the genius which adorns his order—the perseverance which exalts it. Excellence is of every clime, and the universal attribute of thought. We took Abraham Lincoln for a subject of those biographical studies, because he was the first working man who ever rose to a throne without bloodshed, or lost it without a crime; we took George Stephenson, because he was the first pitman who ever had a statue; we took Ebenezer Elliott, although he was a poet; and we take Palissy the potter, although he was a Frenchman. All pursuits are sacred which are honest; all countries are one which give birth to genius.

Bernard Palissy was a true child of poverty and misfortune. After he achieved distinction it was surmised that his father might have been a petty noble; but Bernard lived so long amid poverty and suffering, that it must have been his native element, or he would have escaped from it when in his power. In our day a gentleman will pass one night as a "casual" in a workhouse; Palissy passed half his life as a "casual," and was reviled as well as starved.

He was born about 1509, in the province of Perigord, in France—in the dark and evil days of that land. He was taught the trade of a glass painter, and worker generally in painted glass. He travelled in his youth in Lower Germany, and having some knowledge of geometry, he subsisted himself by making maps of landed property and planning gardens, and anon by glass painting—his usual calling or pursuit. He settled at last at Saintes, the petty capital of Saintonge, where he married when about twenty-nine years of age. Here occurred the event that determined the bent of his genius, and the fortunes of his noble but unhappy life. He was shown an elegant cup of Italian manufacture. It was a mere earthern cup, but turned and enamelled with so much beauty, that Palissy was taken captive by its grace. He felt within himself a taste for the beautiful. He knew that he could produce graceful forms, and his whole life was from that hour devoted to the attempt.

Enamelled cups were made in Italy, but in those days glazed pottery was unknown in France, and Palissy began to discover the secret for himself. It was as though a man in these days should sit down in privacy and attempt to discover Euclid over again. Palissy took glass and earth, and all sorts of chemicals he could get at, and bought all sorts of pots he could afford, and burnt them, and mixed them, year after year, without success. He built all sorts of humble furnaces—he exhausted his resources—all in vain. He had recourse to the furnaces of a glass-house. At one time he put in the furnaces as many as 300 different compounds, all separately mixed and marked, and only one turned out with a sort of glaze upon it, which the curious potter could neither reproduce nor improve.

His family grew, and many sickened and died. Pottery was, no doubt, fatal to them, poor things! He fell into debt. His wife reproached him, and no wonder. Still he lingered over his obstinate crucible. He built himself new furnaces. He sat before them night and day. He fed the fires incessantly as they required to be constantly kept up. For a month he never had his shirt off. When his stock of wood was all gone, he tore up the palings around his house. When they were burnt, he broke up his tables and chairs. When these were consumed, he wrenched up the planks that formed the flooring of his cottage. No wonder that Madame Palissy got out of temper. All Palissy's efforts would not do. The required heat could not be raised in the furnaces. The compounds failed, the chemicals proved false—the enamel would not come. His neighbours thought him mad—and, indeed, he was not far from it. The cups and jugs he had modelled were of exquisite beauty, and the people who saw them would have bought them for their beauty's sake; but because they were not enamelled, he thought it a humiliation to sell his failures, and he broke them all.

Poor Palissy became as thin as Don Quixote. His legs were so shrunken that his stockings could not be kept up with garters. His arms resembled his modelling sticks. There were art and grace in his brain, but none in his personal appearance. His neighbours treated him as crazy, and he held down his head in the streets like a guilty thing. At length, after sixteen years of suffering and perseverance, he succeeded, and produced those wonderful specimens of graceful enamel which made him to be regarded as a great potter, and famous for ever. His family enjoyed their much-needed competence. He had for patrons the Duke de Montmorenci (High Constable of France), the Count of Marennes, the Baron de Jarnac, the Governor of Rochelle, the Count de Rochfoucault, and Queen Catherine de Medicis. Palissy removed to Paris, and for years lived at the Tuileries, where very lately, hardly a year ago, some of his furnaces were discovered, built up in a wall, if we remember rightly.

In the days when the famous "worker in earth," as he modestly termed himself, lived in Paris, he saw heretics come to miserable ends. Francis I. himself presided over the murder of six, who were bound upon a huge wheel made to revolve over a fire, through which the victims passed, and were afterwards lifted high in the air, and made to descend, until repeated scorchings burnt the cords which bound them, and they tumbled headlong into the fiery torture. In one place, in those evil days, a beautiful girl was killed naked, that vile eyes might contemplate the paling of the skin, and the whole sudden change from beauty to the ghastliness of death. Palissy was then aged, but the brave old potter adopted and stood by the Protestant religion. His workshops were gutted by a bigoted rabble. He was thrown into the prison of Bordeaux. Only his powerful Catholic friends, who loved his art, saved him from a cruel death.

He afterwards returned to Saintes, built new workshops, and pursued his favourite work. The dread massacre of St. Bartholomew occurred, and, after many changes and dangers, Palissy returned to Paris, there actually held lectures and discussions, and, notwithstanding the terror of the times, made no secret of his religious opinions. He was thrown into the Bastille. France had no second Palissy, and the fear that his death would involve the extinction of an ornamental art, saved his life. Henry III., who then reigned, used, all starched and frilled (after his fantastic manner), to visit the Bastille; and one day he held with Palissy, who was then seventy-nine years old, this discourse:—

"My good man," said the King, "you have been forty-five years in the service of the Queen, my mother, or in mine, and we have suffered you to live in your own religion amidst all the executions and massacres. Now, however, I am so pressed by the Guise party (the Catholics), and my own people, that I have been compelled, in spite of myself, to imprison you, and the two young women with you. They are to be burnt to-morrow, and you also, if you will not be converted."

"Sire," replied the old man, "you have said several times that you feel pity for me; but it is I who feel pity for you, who have said, 'I am compelled.' That is not speaking like a king. These girls and I, who have part in the kingdom of heaven—we will teach you to talk royally. The Guisarts, all your people, and yourself, cannot compel a potter to bow down to images of clay." The great potter had all the courage and dignity of genius; this was the right kingly speech.

The poor girls were burnt a few months later, and, as Mr. Henry Morley, who has written a valuable life of Palissy, records, the same year the heroic Worker in Earth, Bernard Palissy, died in the Bastille.

Fireproof Paint.—1 lb. best blacklead, 1 lb. of fine gilders' whiting, and ¼ lb. of Quarterman's patent dryer—the whole ground together finely with linseed oil, and then thinned for use with linseed oil alone, and applied like other paints. Wood thus covered will not take fire from sparks.

Origin of the Peach.—The peach was originally a poisonous almond. Its fleshy parts were used to poison arrows, and for this purpose introduced into Persia. The transplantations and cultivation, however, not only removed its poisonous qualities, but produced the delicious fruit that we now enjoy.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

DESIGN FOR A TABLE.

In former days the carpenter loved to cover his work with ornamental designs. If he undertook to make a table, he was not content to merely place a slab of wood upon four sticks. He desired something more—to produce an article which should be ornamental as well as useful. If he could not produce the proper design, he would have recourse to a painter or an architect; for in those days it was not thought beyond the province of what is termed "high art," to stoop to the composition of designs for the commonest objects of every-day use. The tables represented in our illustrations were designed by Joannes Vredman, surnamed Vriese, signifying *native of Friesland*, who flourished about the earlier part of the sixteenth century. Vredman was a poet, painter, sculptor, and architect, and was one of the most fertile artists of his epoch. The general character of the tables is in accordance with the massive style of art prevalent at the period, and affords many suggestions of which a skilful designer or art-workman might avail himself.

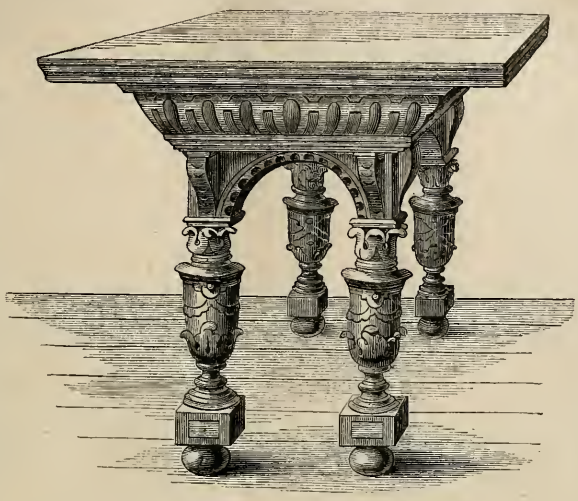

TABLE. DESIGNED BY VREDMAN. FIFTEENTH CENTURY.

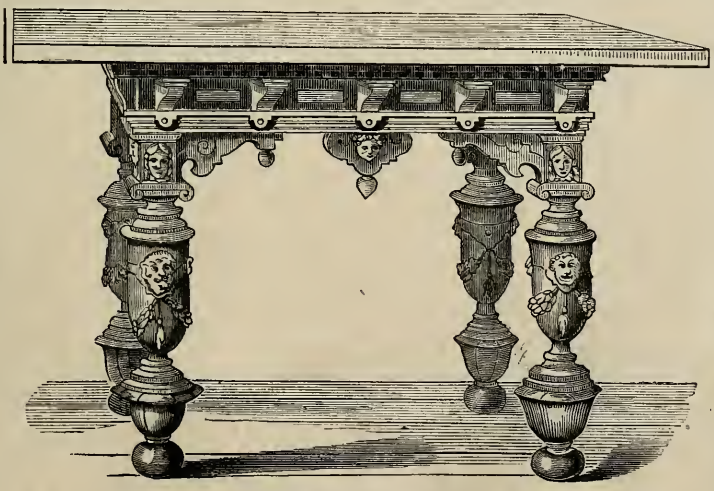

TABLE. DESIGNED BY VREDMAN.

Our Steam Marine.—There are now twenty-three steam-packet companies in this country, who own about 370 steamers, the tonnage of which is 560,000, the horse power 110,000, and the value between £30,000,000 and £40,000,000 sterling.

Letter-Carriers' Grievances.

Having paid considerable attention to the condition and movements of the "working men" belonging to that important section of the public service, the Post Office, during the last quarter of a century, we have been frequently struck with the constantly-recurring symptoms of dissatisfaction which has from time to time been manifested amongst so useful a body. Just at the present time we have a case in point. The employés—sorters, letter-carriers, and stampers—have again memorialised the Postmaster-General, under certain circumstances, for an increase of pay.

At one time, so dissimilar were the duties of the "working men" in the Post Office—so separated by the distinctions of class-rank, and so little were they regarded in relation to the duty itself, that he who wore the garb of the letter-carrier—though dressed in the Royal uniform—was not even recognised as an "officer" of the department. Nor could such a one hope to attain to any promotion out of his particular class. The weekly wage of such men for their labour was ridiculously small, the consequence being that the servant of the Post Office—recognised as such out of doors—was compelled to become dependent upon the liberality of the public. This state of things, however, has, in these instances, through the determination of the men themselves, in a great degree, passed away. These "subordinate" officers are now recognised within the Office as belonging to the establishment; the patronage of appointment is abolished; transfer from class to class, and from one office to another, is permitted; and greater opportunities of obtaining "a rise" are afforded to the members of the "minor" department.

Still, there are grievances remaining; and of these it is our intention to point out a few. The first of these arises from the singular mode in which what is termed "classification" is carried out. Officially, this removal from class to class, or from one kind of duty to another, is styled "promotion." In many instances it is not so; indeed, frequently it proves to be a change for the worse, as many of the men—whether letter-carriers, stampers, sorters, and even inspectors of the minor degree—who have tried it can testify, having proved it to be a fallacy, both in pay and prospect. "Merit," it is said, "is one of the chief grounds of promotion in the Post Office." If this so-called "merit" consists in the mere *capacity* of the officer to perform certain duties—and, in fact, it is so considered—then, indeed, a man may "catch the eye" of his superior officer; but how has it happened that "length of service" has so often been entirely overlooked in such cases? The present wages scale of the department, taken with the roll of the men, and considered jointly with their several original appointments, unmistakably proves the truth of our assertion, and scores of the men now in the service would testify to its accuracy. In the so-called "minor office" this is felt to be, as it unquestionably is, a great grievance.

The time on duty occupied by these men, too, is much more considerable than many imagine. The duties are multiform. Years gone by each man had a specific duty to perform; now, no doubt in consequence of the enormous increase of correspondence, and its almost constant arrival

and dispatch, notwithstanding the great accession of numbers of officers in the circulation department, such duties are so massed together, that it is impossible for us to describe the particular duty of any one of these "working men." The principle adopted is, that when a candidate receives an appointment as sorter, stamper, or letter-carrier (though by far the largest number are originally appointed as letter-carriers), he is expected to make himself "generally useful," as we have it in homely phrase. Hence it will be seen, that if a letter-carrier be off delivery and collecting duties out of doors, work is immediately found for him in the sorting-offices inside the dispatching-office, where he has at once to "turn to" and assist in "getting out" the constantly-received correspondence for the next "turn;" so that his distinctive character as a mere "carrier of letters" is lost, he being thus called upon to give his aid, and, in many instances, to take charge of the duty of other officers higher in rank and pay than himself, and who officially, as a matter of position, receive a greater amount of consideration than himself. In consequence, he becomes dissatisfied with the inequality engendered by the system; and, ere long, magnifies it into a real grievance, of which he considers himself, not unjustly, entitled to complain. Here is an instance: A letter-carrier has, in most cases, three "deliveries" and three "collections" of letters daily. His morning attendance at the office is at a very early hour—say, from five to six o'clock—with but few intervals of rest during the day. His deliveries and collections at night, after sorting, &c., between times, take place after eight p.m., and frequently are not finished before half-past ten, without any allowance in the shape of "extra duty" money, which at one time was the custom. This, then, and the work foreign to his vocation as a letter-carrier, constitute the "grievance."

Next, as to the payment for the services rendered. Against the *rates* of the last scale of wages authorised by the Lords of the Treasury, and signed by the Controller, "as a permanent arrangement for the minor establishments of the Post Office," we have not heard any complaints; but, though the rates themselves may be satisfactory to the men, and show well on paper, they are calculated to mislead those who do not understand their application, and seriously to affect the interests of those who are most concerned in them. The following is the scale:—"180 sorters, with wages, rising by 1s. per week, from 40s. to 50s. a week; 400 ditto, from 23s. to 28s.; 100 stampers, from 28s. to 35s.; 200 ditto, 21s. to 27s.; 330 letter-carriers, from 26s. to 30s.; 670 ditto, from 20s. to 25s.; and 100 supplementary letter-carriers, with 18s. per week wages." Now, let any one of these men ask himself the question—"How long is it likely to be before I can rise, at an increase of wages of 1s. per week per annum, from 20s. to 30s.? Of course it will be ten years; whilst, if the classification system is not fairly carried out, seeing that there are so many hundreds of my brother letter-carriers before me, it may be a much longer time, as it has been in several instances." This is a serious and painful question, constituting another grievance, and one made doubly poignant by the apparent fairness of the scale, heightened by the stern reality of its deceptiveness.

But to this document the Controller, in communicating the above decision of the Lords of the Treasury to the men, has appended a "reminder" to the effect that "the benefit of their places (the letter-carriers' especially) is by no means confined to bare wages." These benefits, as enumerated, are—"pensions granted on retirement; the fair chance of rising to the several classes above them; their fortnight's holiday on full pay; medical advice and medicines gratis; uniform clothing; gratuities at Christmas," &c. The advantages of the most part of the above are self evident; but the permitted tax upon the public in the shape of "Christmas gratuities" is not worthy of the public service. Its collection, though profitable to some of the men, is distasteful to the whole of them. It, moreover, gives rise to much internal bickering amongst the men themselves; it is an unjustifiable tax; and for many reasons ought to be immediately and for ever abolished, the recipients being duly rewarded for their official duty by moneys derived directly from the Post Office exchequer, and not from any private sources whatever. Had we space, we could point out many evils, and not a few misconceptions, as to what is called, by the official notice above given, the "money value" of the "benefits" alluded to; but we are reluctantly compelled to forbear.

At length we have reached the "Memorial of the men, and his lordship, the Postmaster-General's reply in relation to their request for more pay in consequence of the increased price of provisions, and the high charges for house and room-rent." The prayer appeared to be reasonable enough, but the answer is very unsatisfactory to the men. His lordship's reply was: "I think it is very doubtful whether it can be established that the cost of provisions, and other articles of necessary consumption, has increased of late years, with, perhaps, the exception of butchers' meat, at the present moment. Bread, tea, coffee, sugar, and other groceries, and many articles from which Excise and Customs duties have been removed, can be obtained even at a lower rate. I do not think, therefore, there are just grounds for asserting that the cost of living has materially increased, and I am not prepared to entertain this application. It is probable that house rent is higher, and I shall be glad to find that the railway companies are disposed to give the proposed accommodation of early trains, which will tend to remove the ground of complaint. I therefore entirely approve the proposed arrangements, which on every account are desirable, and will, I hope, prove advantageous to the officers of this department." Being present at the meeting on the Saturday night when the reply of his lordship was read, we were struck with the almost silent, but unmistakable marks of derision with which it was received by the numerous body of men connected with the "minor department," who assembled to hear it read by the secretary to the deputation appointed by them. No wonder that they subsequently selected seventeen other men from their united body to prepare another memorial, and generally to act as watchmen over their interests. Granting, however, that groceries may be obtained at a low cost, and even admitting, for the sake of argument, that the reductions in "Excise and Customs duties" are equivalent to the enormous increase in the prices of "butchers' meat," we cannot yet perceive how the cheap trains are likely "to prove advantageous to the officers employed in the department," the more especially if they have to pay out of their own pockets for the accommodation. As to the probability of their obtaining house and room rent cheaper in the suburbs of the metropolis when such transit accommodation is provided, we regard it as extremely unlikely, and indeed of a very doubtful character, inasmuch, as the greater the facilities furnished by the directors for the conveyance of such classes of passengers at cheap fares, and by early and late trains, the greater will be the demand for house and room lodgment, and the higher the charges in the shape of rentals must necessarily become.

It is to be hoped, however, when the railway cheap trains become so general as to "prove advantageous to the officers of the department"—as the Postmaster-General appears to anticipate so far as to "hope" they may be—that at least the weekly expenses of the travelling to and from "duty" will be allowed to them by the Office, or we shall have another "grievance" to add to our catalogue, already too far extended to augur well for the quiet of so excellent and useful a branch of the public service.

No class of public servants deserve more liberal treatment than the letter-carriers. Their duties are most arduous, and the value of their diligence and trustworthiness is certainly more immediately apparent to the public than that of any other officials. If the Postmaster-General believes that the railway companies are willing to run early trains at low fares, he might make, on the part of the Government, such arrangements for the benefit and convenience of the men as, in all probability, they would be unable to make themselves. As railway companies give no direct compensation for displacing poor people, they should be bound to give a return in another way.

We all have our wants, in whatever station of life we be. The rich, in many cases, want sympathy for the indigent; the physician, patients to swallow his pills; the mechanic, plenty of work, good spirits to do it, and prompt pay when it is done; and it is whispered that some young ladies want sweethearts—we think this may be a mistake; if it is, we will be happy to correct it.

The Temperance Question:

ITS ECONOMIC ASPECTS.*

The science of political economy, which treats of the sources and conditions of national wealth, has excited, and is still exercising, great influence over the educated and ruling classes. No longer confined to the closets of philosophers, it carries its lessons into the cabinets of statesmen, and infuses its spirit into the statutes of the realm. But it has been made a subject of complaint, that neither professors of political economy, nor its disciples in the political world, have taken a sufficiently careful view of the Temperance question in its relations to their favourite science. Many years ago—in the December of 1844—Earl Russell stated, in Exeter Hall, "I am convinced there is no cause more likely to elevate the people in every respect, whether as regards religion or political opinions, or as regards literary and moral culture, than this great question of Temperance." And from the pen of Richard Cobden, nine years later, dropped the weighty words, "Every day's experience tends more and more to confirm me in my opinion that the Temperance cause lies at the foundation of all social and political reform." How the Temperance question stands related to political economy can only be adequately apprehended by regarding it *first*, as the direct antagonist of the national intemperance; and, *secondly*, as seeking to put an end to the use and manufacture of intoxicating liquors. If we can learn how the national economy in its most comprehensive sense is affected by intemperance generally, and by the production of intoxicating liquors specifically, the bearings of the Temperance question on that economy will be readily perceived.

First, then, as to intemperance. The undoubted effect of this vice in its several developments, whether grosser or more refined, is injurious to all the economic interests of society. By the accidents and catastrophes it occasions, frequently involving enormous losses of property, it destroys many valuable fruits of labour. It hurries to a premature grave every year thousands of the producers of wealth, besides indirectly aiding to bring about the untimely decease of numberless infants and sober adults. It lays upon a sick bed myriads of workers, and not only deprives society of their skill, but too often casts them helpless upon their friends or public charity. It creates periodical indisposition to labour in large sections of many trades, and an almost chronic inability for work in not a few. It raises the pauper list three-fourths, or 75 per cent., and the crime list one-half at least, or 50 per cent.; and imposes upon the community all the costs of this pauperism and crime—some of these costs being legal, and others extra-legal. It also leads to great waste in the use of private property, to bankruptcies, and also to quarrels, by all of which the conservation and multiplication of wealth are considerably hindered. The Parliamentary Select Committee, of which Mr. Buckingham was chairman in 1834, estimated the annual loss to the country, from time and labour wasted in this vice, at not less than fifty millions per annum. The effect upon commercial affairs is often disastrous. Large orders are frequently unable to be executed with promptitude, because the men are "on the drink;" and in some establishments the tippling of a few men is sufficient to delay the completion of valuable contracts. Employers are known to complain of being heavy losers by this dissipation, while the men and their families suffer relatively still more. The whole inland trade of the nation, in short, is depressed by this vicious conduct; for what is lost in wages to the workers is lost in custom to the retail traders, and through them to the wholesale manufacturers and merchants. Nor does the economic sacrifice end here. The country loses the benefit of any inventions that might proceed from the ingenuity of sober operatives, and all that accession of capital and its productive employment which an investment of their surplus wages would ensure. Commercial co-operation among the industrial classes is a very interesting sign of the times, and since 1844 it has rapidly thriven; but all the capital so applied is a mere fraction compared with that which is annually expended in "adding drunkenness to thirst." Were intemperance to disappear, the moral tone, and intelligence of

* Continued from page 42.

society would be strikingly improved, and this improvement would in its turn react on our social economy, and would assist very powerfully in the prevention of strikes, and in putting the relations of capital and labour on a footing opposed to the feuds between them that from time to time now grievously trouble and perplex our social system. The progress of our country in wealth is unquestionably very remarkable, but it ought not to make us insensible of great drawbacks, or of the unsatisfactory influence of this progress on the condition of the working millions, or of the co-existence with our enormous wealth of a poverty and positive destitution that cast a sickly hue over all this golden glory. Intemperance accounts for a large proportion of what is low and lowering in our economic state; and at its door may be laid a loss of wealth, year by year, that, if told in coin, would not fall short of a hundred millions sterling.

Most persons admit this to be true—and how it can be denied by a reflecting mind is difficult to imagine—and some advocates of temperance are content to stop here, alleging that as their plan, if universally adopted, would prove as great an economic blessing as intemperance has proved a curse, their case is unanswerably strong. But other advocates—and among them the most able and philosophic—carry the argument still further. They affirm that, were no intoxication known, and intemperance a memory of the darker past, the manufacture and use of intoxicating liquors would still be a grave economic blunder. Whether they reason correctly, the reader must judge. Starting from the point (noticed in page 3) that inebriating liquors contain little nutriment, and that their alcoholic nature renders them injurious rather than useful or innocuous, they argue that the destruction of grain in their manufacture is a violation of economic law. About fifty millions of bushels of corn are yearly employed in British distilling and brewing, and it is calculated that from this corn, or the land that grows it, the bread supply of two millions of persons could be provided. The authority of Paley has been quoted in support of the opinion that distillation from bread-corn is commercially a crime. If, however, the corn used in making intoxicating liquors is wasted, nothing less can be said of the money paid in their purchase; and this seems to have been once the conclusion of the *Times* newspaper, when it affirmed, "It is a peculiarity of spirit-drinking, that money spent upon it is, at the best, thrown away, and in general far worse than thrown away. It neither supplies the natural wants of man, nor offers an adequate substitute for them. . . . A great portion of the harvest of many countries is applied to a purpose compared with which it would have been better that the corn had never grown, or that it had been mildewed in the ear. No way so rapid to increase the wealth of nations and the morality of society could be devised as the utter annihilation of the manufacture of ardent spirits, constituting as they do an infinite waste and an unmixed evil." In the retail purchase of intoxicating liquors, the British people expend from seventy to eighty millions a year, and from an economical stand-point—considering to what other purposes this money could be wisely applied—such an expenditure is open to the strongest condemnation, if the change from corn to alcohol is a change from aliment to none. This is worse than asking for bread and getting a stone; for the stone in this latter case, which is no food, costs several times the price of the bread which is. Supposing, too, that there is a loss of the corn, and a loss of the money spent on the liquor, other losses are included in this great economic failure. The labour used in producing the corn so destroyed is equally lost in an economic sense, and all the labour subsequently employed in making and selling intoxicating drinks must likewise count as nothing to the common good. It happens, again, that as enough corn is not grown in England to feed the population, large quantities are imported from America and other quarters; but to render such importation profitable, corn must reach a certain price at home, and the whole of this additional cost coming out of the pockets of British bread-buyers, may be considered as a bread-tax imposed by the manufacture of intoxicating liquors. It has further been ingeniously urged, that if the money now spent in drink were spent on other articles, a great impetus would be given to home manufactures, and the labour-market be healthily stimulated. This opinion is based on the fact that the value of the labour used in making intoxicating liquors is small as compared with the value of labour in other trade operations. Of £1 expended on drink, 1s. only is reckoned to reach the workman; whereas, in £1 expended on clothes, shoes, or furniture, from 6s. to 15s. goes direct to the workman. As an auxiliary consideration, this is of no mean importance.

Having thus presented the topic of Economy in its personal, domestic, and national aspects, as related to the Temperance question, we shall forbear exhortation or application. We had much rather rest in the assurance that those who read what has been written, will know how to put to profitable use the information it has conveyed.

Processes of the Arts.

PROCESS FOR SILVERING AND REPAIRING ARTICLES OF COPPER, BRASS, GERMAN SILVER, ETC., WITHOUT A GALVANIC BATTERY.—BY M. RÖSSLER.

For this object we make use of a diluted solution of double cyanide of potassium and silver, such as is usually employed in ordinary galvanic silvering. Cover with this solution the articles to be silvered, or the parts of the silvering which require to be repaired, and then immediately apply a little zinc filings, free from oxide, which is touched on with a pencil or little brush. The article thus treated, or the points where the cyanide and zinc have been applied, are immediately covered with a coating of silver—light, it is true, but durable.

It only remains to wash the article two or three times in distilled water, and dry it carefully with a piece of clean flannel. The zinc filings removed by the washings are collected and dried, and serve anew or to collect the adherent silver by treating them with diluted hydrochloric acid, which leaves the insoluble chloride of silver.

Articles of copper or brass, by simple friction with the double cyanide of silver and potassium, assume a white colour; but this silvering scarcely possesses the durability of that obtained by the process above described, for although recourse has not been had to the galvanic battery, the method is none the less based on the action of galvanic electricity.

This process is particularly applicable to the silvering of copper medals, or to articles of jewellery plated by the galvanic process, with defects in the coating. It is to be well understood that, with the first, all trace of oxide must be first removed by means of diluted hydrochloric acid, in order to obtain a thorough adherence of the silver.

By this process iron may be coppered by means of a solution of cyanide of potassium and copper, and afterwards silvered with the silver solution.

The cyanide of potassium, and silver solution containing cyanide of potassium, if allowed to touch wounds or abrasions of the skin, exercise a poisonous influence; it is therefore necessary, in the manipulations of this process, not to neglect the precautions prudence suggests in such cases. It is also necessary that all the articles placed in contact with these solutions be scraped and cleaned with the most scrupulous care.

METHOD OF RENDERING WOOD PLASTIC.

This method consists in causing diluted hydrochloric acid to penetrate the cells or pores of the wood, under a pressure of about two atmospheres. This impregnation requires to be continued a long time, varying, however, with the nature of the wood. It is not necessary to previously deprive the wood of its bark, and by means of an arrangement easily imagined, the liquid penetrates at one extremity of the tree, and flows out at the other. If the wood, while still wet, be submitted to pressure, after having washed the cellular tissue with water, its bulk may be reduced one-tenth of what it was originally. The fibres admit of being brought into close contact without cracking or breaking; and when they become dry they make no effort to separate again. If colour be injected, the details appear clear and bright, and with the most perfect exactness.

The wood thus impregnated may be turned to account in many ways. When, after it has been submitted to the action of hydrochloric acid, it is washed and dried, it can be cut with remarkable facility, and can also be employed to great advantage by carvers. The drying is effected by driving hot air (100° Fahr.) through the pores. By this means moisture is quickly expelled; and as contraction takes place equally throughout the mass, no cracking ensues. In this manner colouring matters and substances calculated to prevent dry-rot, can be introduced into the substance of the wood. Soluble glass, or recently precipitated silica, thus render wood incombustible and durable.

A NEW GAS FURNACE.

What appears to be a very useful new gas furnace has just been invented in France. Bunsen's furnaces, commonly employed in laboratories, burn a mixture of gas and air; but their heating powers are considerably limited—in fact, it is necessary to limit the supply of air to prevent the furnace cooling too rapidly. It will speedily attain a heat sufficient to melt copper, but not go much beyond. M. Ch. Schlœsing, acting upon some experiments he made with M. Demondésir, obtains with a mixture of gas and common air a temperature much higher. The principle upon which the furnace is made is "combustion, without excess of gas or air," the said combustion being made to take place in a small space. A plentiful supply of the gases is kept up, to maintain an elevated temperature, without loss through the walls of the furnace, or any other absorbents of heat. To realise these conditions, which rationally must be expected to produce the greatest calorific effect, the inventor adopts an arrangement which is in principle the reverse of that of Bunsen—that is to say, that the orifice for the admission of carburetted hydrogen is much larger than that through which the common air passes. When the mixed gases are lighted, a great blue flame is produced, the heating power of which does not appear to be much greater than in an ordinary furnace of equal size; but when the flame is forced into a refractory envelope, from which external air is excluded, then the calorific effect becomes very great. The increased heating effect is caused by the total combustion of the carburetted hydrogen, by the theoretically necessary quantity of oxygen, without the admission of useless gas. In further carrying out the principle, M. Schlœsing indicates the special arrangements most convenient to heat to whiteness tubes of porcelain and crucibles; in effect, he modifies the flame and the apparatus to suit every description of work to be performed. Like Lenoir's engine, this appears to be a valuable little arrangement for applying common gas to a useful purpose in a few minutes.

PREPARATION OF WHITE OR COLOURED MASSES OF CAOUTCHOUC AND GUTTA-PERCHA FOR THE FABRICATION OF VARIOUS OBJECTS.

The raw material, caoutchouc or gutta-percha, is cut into small pieces, and after it is washed in water, is dissolved in any of the usual solvents, such as benzole, bisulphide of carbon, or chloroform.

To produce white products, chloroform is specially recommended as the solvent, because it permits of being employed over and over again.

The solution is effected in an air-tight vessel by constantly stirring the mass, through which, after it is completely dissolved, a current of chlorine gas is passed by means of a pipe at the bottom of the vessel, until the mass is perfectly penetrated by the gas, and exhibits a uniform light-yellow colour. When the whole mass has acquired this colour, the introduction of the gas is interrupted. That which escapes at the top of the vessel is conducted by a pipe into another vessel, where it enters into a combination with lime.

The mass, now perfectly chlorinated, is conveyed from the vessel in which it was dissolved into another, where it is stirred and washed in alcohol, kneaded, and rolled out. In this state it forms a light, compact, white mass.

The same result may be obtained, but after a much longer time, when the raw material is not cut up, but merely washed and dried, and rolled between hot iron cylinders; then, thus prepared, it is conveyed into a vessel filled with water, in which, after being hermetically closed, a current of chlorine gas is admitted until the mass is saturated with it. It is allowed to remain in this vessel until it becomes of a whitish hue, then removed and dried, and it is then treated in the same manner as the first product.

The white mass obtained is dissolved anew, and stirred with a little chloroform; and, according as it is desired to be light or heavy, and of a white more or less pure, it is mixed with variable quantities of lime, calcined oyster-shells, marble, metallic oxides, barytes, clay, sulphate of lead, &c. This mixture is well kneaded, then moulded in a press into blocks or slabs of variable thicknesses and sizes, or directly into the form it is wished to give to the articles, such as buttons, handles of knives and tools, billiard balls, pianoforte keys, &c.

To prepare black or coloured masses, suitable pigments are added, and the cuttings and refuse of the manufacture are applicable to this purpose.

The white, black, or coloured masses obtained by these means may, in all cases, replace ivory, bone, horn, ebony, &c. They can be sawn, cut, turned, and polished like those materials.

COLOURED PHOTOGRAPHY ON PAPER.

The problem of the reproduction, by photography, of objects with their natural colours, has been proposed since the origin of this beautiful art. It consists in discovering one sole substance which the red rays would colour red, the yellow rays yellow, the blue rays blue, &c.

M. Edmond Becquerel has been the first to obtain, on plates of silver, the surface of which had been brought to the state violet hypochloride, a coating possessing the property of receiving impressions within the same limits of refrangibility as the retina. His magnificent copies of the solar spectrum, and of objects reproduced, with their natural colours, in the camera obscura, have excited universal admiration. M. Niepce de Saint-Victor, who has followed, with a perseverance worthy of the highest praise, the path opened by M. Edmond Becquerel, has obtained, on his part, very beautiful results, but as yet incomplete. He operated, also, upon a plate of silver; and the question was, whether they could not arrive at substituting paper for silver. Now, this is the problem which M. Poitevin, the

celebrated inventor of the charcoal process of photography, has just solved, with most unhoped-for success. After long trials, he discovered that the violet hypochloride of silver of M. Edmond Becquerel—which upon paper is only coloured very slowly and incorrectly by the rays of the sun traversing coloured glass or a transparent and coloured drawing—is, on the contrary, so modified, even for diffused light, when it has been previously covered with a solution of an alkaline bichromate, &c., that it becomes very promptly white in white light, and that it takes the colours corresponding or similar to those of the different rays which act upon it. This is his process:—To the surface of the photographic paper, previously covered with a coating of violet hypochloride of silver, he applies a liquid formed by a mixture of one volume of saturated solution of bichromate of potass, one volume of saturated solution of sulphate of copper, and one volume of solution at five per cent. of chloride of potassium. He allows it to dry, and keeps it from the action of light; and in this state it will keep good for several days. The bichromate of potass is the principal agent. It can be replaced, but without advantage, by free chromic acid, &c. The sulphate of copper facilitates the reaction, and the chloride of potassium preserves the whites which are formed.

Through paintings on glass, the exposure to direct light is only about five to six minutes: it is proportional to the greater or less transparency of the plates. This paper is not sensitive enough to be usefully employed in the camera; but, as it is, we can obtain images in colour in the apparatus for enlarging proofs, or the solar megascope.

To preserve these proofs in an album, it is sufficient to wash them in water acidulated by chromic acid, to treat them afterwards with water containing bichloride of mercury, to wash them with water saturated with nitrate of lead, and lastly, in plain, or, rather, distilled water. In this state they will not alter by exposure to diffused light, but they turn brown in the direct light of the sun.

Thus, we see that to arrive at a perfect solution of this magnificent problem is only a step—to give to M. Poitevin's paper a much greater sensitiveness, and to fix the image in a more permanent manner. The fixing of M. Poitevin's proofs is already very remarkable.

OZONE AND ELECTRICITY.

The recent experiments of M. de Luna—the disengaging of nitrous acid or ozone by the action of nitric acid on copper turnings—in the grand hall of the Society of Encouragement of Paris, furnished an occasion for a very curious observation. M. Hempel had brought his new electric machine, which gives sparks of 19·63 inches, and he was invited to put the machine in motion at the moment when the hall yet contained vapours of nitrous acid or ozone. But, to the great surprise of the experimentalist, the power of his splendid machine appeared extinct; it gave with difficulty, though with the effort of a vigorous arm, scanty and short sparks. In order to hide this default, an apology was made, assigning as a cause the excessive humidity of the warm air, saturated by the incessant respiration of the crowded auditory. The explanation was accepted. M. Hempel, however, recollected that on the preceding Saturday, at the meeting of the Scientific Association at the Imperial Observatory, in the midst of an atmosphere more humid still, and although closely surrounded by a vast number of persons, this same machine had worked in proper order, and produced without effort the longest sparks. The cause, therefore, of the impotence of the machine was to be sought elsewhere. The idea struck him that the vapours of nitrous acid or ozone might have something to do with it, and he resolved to try if it was the case. The instrument having been taken back to the workshops, he renewed the amalgam of the cushions, rubbed with hot cloths the plate of glass and the conductors, and afterwards, when it had recovered its maximum effect, disengaged, in presence of his assembled workmen, vapours of nitrous acid according to the process of the previous evening. Scarcely was the ozone perceptible before the sparks diminished in length, and when the disengagement had become sufficiently abundant, the machine had again almost entirely lost its power of producing electricity. Repeated many times before a great number of competent witnesses, the experiments always gave the same results. What is the more remarkable, it was necessary to wait until twenty-four hours had elapsed after each disengagement of nitrous acid, for the electric machine to regain its primitive energy. How can this mysterious fact be explained? Does the negative electricity essential to the ozone neutralise the positive electricity of the conductors of the machine? A young chemist and physician, M. Fels, to whom this fact was related, recollected that one day, while in the cabinet de physique of the Faculté de Besançon, a carboy containing nitrous acid having been broken, it was impossible, although the floor had been well dried and washed, to obtain sparks from an electric machine in good order; its impotence was sensible still after a lapse of six months. That is certainly an astonishing property of ozone.

Taken in connection with the recent discovery at Madrid and Paris, of the remarkable effect of the liberation of ozone in diminishing choleraic disease, the foregoing experiments are extremely interesting.

Things Talked About.

When an Emperor speaks, we suppose we are bound to listen. Napoleon III. opened the French Chambers on the 22nd, and although, of course, the main interest of his speech was connected with matters of high politics, yet there were a few sentences of special interest to our class. Everybody knows that a few months since trade strikes prevailed in France, the very place where strikes had been declared impossible. The Government, never favourable to coalitions of any kind, were probably alarmed, and instituted certain measures, which the Emperor now tells us were successful:—"The law on coalitions (strikes), which had given rise to some apprehensions, has been carried out with great impartiality on the part of the Government, and with moderation on the part of the persons concerned. The working-class, so intelligent, has understood that the more the facilities granted to it for discussing its interests, the more it was bound to respect the liberty of each and the security of all."

Co-operation, too, we are told by the same high authority, is making way in Paris, and the powers that be are highly favourable to its development:—"The inquiry which has taken place concerning co-operative societies has shown how just were the bases of the law which has been presented on this important subject. This law will permit the establishment of numerous associations for the benefit of labour and prudence. In order to favour their development, I have resolved that the authorisation required for meetings shall be granted to all those who desire, apart from politics, to deliberate in common on their industrial and commercial interests. This facility will be limited only by the guarantees which public order requires."

By a somewhat noticeable coincidence, at the very moment when the Emperor is lauding Co-operation, a letter appears from M. Ledru-Rollin on the same subject, in which the ex-tribune—who probably agrees with the Emperor in nothing else—strongly supports the principle of association.

A high authority at home—the Court of Queen's Bench—has given a decision on a question relating to strikes, which is well worthy of consideration. A number of workmen engaged in the service of a person at Nottingham, turned out on strike, being unable to come to a satisfactory arrangement with their employer on some matter of grievance. One man remained at work, and the vice-president of a Trade Union headed a deputation to the employer, and told him that unless he dismissed the man the others would not return to work. For so doing the vice-president was brought before the magistrates on a summons, convicted of using threats, and sentenced to two months' imprisonment with hard labour. Against that conviction he has unsuccessfully appealed to the Court of Queen's Bench, which has affirmed the conviction.

From the same quarter—Nottingham—we have information of a movement which may result in a diminution in the number of these unpleasant trade disputes. The Nottinghamshire and Midland Counties Merchants and Traders' Association has resolved to establish a committee of arbitration, to which difficult questions may be submitted, with a view to arrangement. It is to be hoped that the advance thus made by employers will be met in a liberal spirit. Of course, the movement is as yet one-sided, but may lead to good results.

Recurring to France, we see that the operative paper-stainers of Paris have struck work—not for increase of wages, but for reduction in the hours of labour. They now work eleven hours a day, and ask for an hour less. A curious feature in the case is, that the men signed engagements, in September last, binding themselves to work the eleven hours, and on the faith of that the masters entered into contracts, which cannot be fulfilled except by working the full time. They promise, however, to consider the matter in September next, at which time fresh arrangements are entered into for the ensuing year. Their argument appears to be reasonable; but we are sorry to see that the men, notwithstanding their engagements, have resolved to quit the shops.

While the Parisian paper-stainers consider ten hours to be a fair limit for a day's work, the house-painters of Edinburgh are striving to obtain a reduction of their hours of daily work to nine, and have formed a union for the purpose of carrying out their views.

There is an extensive strike among the potters at Bampton, near Chesterfield, where the famous salt-glazed brown earthenware is made. A thousand men have left work, the reason being that the masters, while granting an increase of pay for certain articles, excluded one particular class of earthenware known as "twelves," for which an extra fourpence a score is asked by the men. The matter in dispute appears to be one which might be easily arranged, and we hope to be soon able to report the return of the men to work on satisfactory terms.

The large class of railway servants, generally men of considerable intelligence and high character, are gradually uniting into a compact body for mutual help. A society is proposed, which is to bear the title of "The Railway Guards, Signalmen, and Switchmen's Society of the United Kingdom." The object is partly provident—for instance, the accumulation of a fund for the relief of the families of men who may lose their lives in the performance of their duty. This matter is still under discussion. The secretary reported to a meeting held a few days since, that memorials had been forwarded to the traffic managers of various lines, asking for an increase of wages, and a reduction of the hours of labour to reasonable limits. The boards of directors had replied that they declined to recognise memorials emanating from societies, but were not unwilling to listen attentively to complaints from the men in their particular employ. In consequence of this decision, memorials had been sent to the several companies, signed only by their own men, and the answers were daily expected. In the meantime, on three of the leading metropolitan lines, a great number of the men had received an increase of pay. We are very glad to hear it; for it is abundantly evident that hitherto the men, on whose activity and carefulness so very much depends, have been lamentably under-paid and over-worked.

A remarkably interesting book, "The Facts of the Cotton Famine," has just been published by Dr. John Watts, of Manchester, well known for his constant advocacy of all questions connected with the welfare of the industrial classes. His local connection with the terrible scenes of distress afforded him unusual opportunities of observing the real facts of the cotton famine; and his book is interspersed with sound reflections on many matters of interest to working men.

Mr. Bright has addressed a letter to an American friend on the subject of free trade beyond the Atlantic. The letter has been published in the *Chicago Tribune*. He propounds his opinions with all his accustomed vigour and terseness; but it is somewhat curious to find him maintaining that the working classes in this country are more prosperous than those of the United States. He says, speaking of England—"At this moment wages are higher than at any former period in this country—than in any former period, at least, within our recollection. It is so through all our manufacturing districts, although the length of the day's labour is much shorter. It is so also with our farm labourers. In many counties their wages have risen from 25 to 50 per cent. since 1846, when our agricultural industry was subjected to the competition of all the world. The labourers in America are taxed enormously in the purchase of many articles, particularly in their clothing. Americans and Englishmen going from England to America now supply themselves with clothing to last them for years: they buy it for about half the price it would cost in the States, and thus withdraw their trade from the American manufacturers, and escape the payment of the extravagant duties in the American ports." It will be strange indeed, he says, if, now that all the countries in Europe are tending to freedom of trade, America should be the last to discover its priceless value.

The final report of the commissioners appointed to inquire into the state of the Patent Office has been published. They express an opinion that the value and importance of the office has not yet been duly appreciated; and recommend that no portion of the rapidly increasing fees (now paid in the shape of stamp duties) should be appropriated to the general revenue of the country until the accommodation, expenses, and due working of every department of the Patent Office have been amply and liberally provided for.

The subject of home accommodation for the working classes has been made the subject of a very interesting discussion at a meeting of the National Association for the Promotion of Social Science. Several papers were read on the subject, and ultimately a committee was appointed to consider the suggestions, and embody them in a measure to be submitted to Parliament. The leading ideas were that freehold land and building societies might profitably undertake the work, in conjunction with municipal and corporate bodies, endowed with powers by Act of Parliament; and that boards or commissions should be formed, with power similar to those possessed by railway companies, for the compulsory surrender of suitable sites, and the removal of unfit dwellings. Mr. M'Cullagh Torrens, M.P., offered to prepare a bill, and introduce it into the House of Commons. Of course, determined opposition may be looked for, but out of the contest good may come. The directors of the Metropolitan Association for Providing Dwellings for the Working Classes have just been empowered to raise £21,000 on mortgage, for the purpose of carrying out their plans. They have already, in the various blocks of buildings, provided accommodation for 438 families.

Experiments conducted by M. Meynier, a member of the Lyons Chamber of Commerce, have resulted in the discovery that the fibre of the Chinese grass, after having been submitted to certain processes, is perfectly capable of being mixed with silk, and of taking the most delicate tints in dyeing. Various new fabrics may therefore be looked for.

The sawyers in the employ of the master shipbuilders at Great Grimsby, who had struck for an advance of wages, have, to a certain extent, re-considered their position, and expressing regret at "the rash haste with which they made their demand," have resumed work. At a meeting of the Shipbuilders' Association, it was resolved that the wages of shipwrights should be sixpence a day less for new than old work, and that no

member of the association should employ any man who could not give satisfactory reasons for leaving his last situation. This determination has greatly exasperated the men, who designate it a ticket-of-leave system, and now the whole of the shipwrights of the port are on strike.

The extreme drought in some parts of Australia has exercised a most depressing influence on the labour-market. On the Lower Murrumbidgee and the Lachlan hundreds of men were, at the date of the last advices, wandering about in the last stage of destitution. "The smaller settlers, tenant-farmers, and free selectors," we read, "find themselves face to face with ruin."

Sheep-keeping in Australia must be a wretched occupation. Half starved, miserably housed, and utterly lonely for months together, no wonder the minds of the men become affected. A shepherd on the Lower Bogan river writes to the *Melbourne Herald*:—"This solitary system is only in its infancy, but in ten years' time I shudder to think how many men's intellects will be shattered by it—my own, perhaps, amongst the rest. It is an inhuman practice, and requires the interference of Government. Why, at the present time there are enough lunatics walking up one side and down the other of the Darling River to stock an asylum on a small scale. Every year adds to the number."

There is an eight hours movement among the Scotch miners, and at a meeting held in the City Hall, Glasgow, strong resolutions were passed. There is also a short time agitation among the shipwrights and boiler-smiths of Stockton.

The Metropolitan Board of Works is anxious to be invested with the control of the commons and open spaces around the metropolis. There was a very large and influential meeting at the Mansion House on the 24th ult., in which several of the City Aldermen, Members of Parliament, and other persons of influence took part. It was shown that the legal rights of the public to open spaces, and the privileges of lords of the manor, were very ill-defined. Resolutions pledging the meeting to support the efforts of the Commons Preservation Society were unanimously passed. Energetic and immediate action is necessary. Every year sees some open tract withdrawn from the public use; and one very telling fact was noticed by Mr. Toynbee, the eminent surgeon, that 15,000 people die annually in London of lung diseases—in other words, so many were poisoned by bad air.

At a meeting of needle manufacturers held at Redditch on the 23rd ult., the question of extending the provisions of the Factory Act to that trade was considered, and referred to a committee for consideration and a report.

The shipwrights and artisans of Portsmouth Dockyard are forming a meat association on Co-operative principles, for the purpose of obtaining cheap butchers' meat.

General Information.

CLUBS AND INSTITUTES.

Leicester Working Men's Club and Institute.—This society was formed last year, after a public meeting presided over by the Mayor, and was addressed by the Rev. R. J. Allen, of St. Martin's, Leicester, Rev. H. Solly, Dr. Gutteridge, and other gentlemen. The enterprise started most hopefully, but a difference of opinion arose on the question of introducing beer into the club, which at first threatened to produce disastrous consequences. A majority of the committee had considered that it was desirable that malt liquors should be allowed in the club, but quite concurred in the propriety of submitting the question to the whole body of members. A special general meeting was, therefore, recently held, attended by nearly all the members—between 300 and 400—when it was decided against the admission of beer by an overwhelming majority. There were very few teetotallers among the number, they having for the most part stood aloof, apprehending a contrary decision. The grounds on which the men came to this conclusion were much the same as those on which a similar result has been arrived at in most other clubs; but it would occupy too much space to state them here. They are summed up in a letter written by Mr. Solly, at the request of some members of the committee, and read at the meeting. This letter has since been published as an "Occasional Paper" by the Council of the Union, and may be had at their office.

Sheffield.—A public meeting has been held, called by requisition to the Mayor, and presided over by his Worship, for the purpose of receiving the report of the Provisional Committee, appointed at a public meeting in October last, for the establishment of a Working Men's Club in that town. The report stated that, after every exertion to procure suitable premises, the committee had been disappointed in their endeavours, and they now recommended that a capital of about £5,000, in shares of £1 each, be raised among the working men of Sheffield, their friends, and the Order of Odd Fellows, and Mechanics' Institution, allowing ten weeks from that day for the purpose. The report was unanimously adopted; and after several speeches by various gentlemen and working men, the meeting, which was characterised by exceedingly hearty and earnest spirit, adjourned to the 28th of March.

Rotherham and Masbro' Working Men's Club.—A tea meeting has been held by the members of the above, in a large room at Rotherham, when about 120 of the members sat down. After tea the Rev. H. M. White, of Masbro', presided as chairman, and addresses were delivered by Messrs. Ellis, Wilkes, and Cook. Mr. Cook, in the course of his address, said that as the proposed new line of railway would involve the demolition of the building in which the meetings were now held, he did not see any reason why they should not build a Hall of their own for the district, as other clubs had done in their respective towns. He earnestly appealed for support, and proposed that the structure should be built on the limited liability principle, in £1 shares, paid by monthly instalments of 2s. 6d. He however thought that half the cost should be realised before they commenced building operations.

Halifax.—On Monday, the 15th ult., the annual distribution of prizes in connection with the Halifax School of Art, took place in the Assembly Room, on the walls of which were displayed the productions of the students. There was a large attendance, and among the gentlemen on the platform were Sir F. Crossley, M.P., Mr. Stansfeld, M.P., and the Mayor, Dr. Wightman. Mr. E. Akroyd, the president of the school, was in the chair. In the course of his speech Mr. Stansfeld said, "Art education ought to be a part of the general system of the country. They all knew that periods of moral decadence were invariably accompanied and characterised by a condition of spurious and depraved art, and he thought it was not too much to infer the converse, that an education in the principles of true, simple, refined art, must add something morally, as well as intellectually, to the status of the country. (Applause.) Lastly, as to the administration to which the report referred. He had looked into some figures on the subject, which certainly were not very encouraging. The schools of art were about 90 in number, the scholars were between 16,000 and 17,000, and of these, perhaps, 9,000 were artisans; the total amount of voluntary subscriptions was not more than £2,500 annually; and of that sum not more than one-half was subscribed by the manufacturers of the country; and the total amount of their subscriptions had rather decreased of late years than otherwise. If it was the interest not only of the family, but of the locality, and not only of the locality but of the nation, that every individual in it should receive the best possible education, the individual or his family, the locality and the nation, ought to contribute in some degree or proportion to be settled, towards the attainment of that great and common object."

Kidderminster.—We are glad to learn from its annual report, that the Committee of the Government School of Art are able to speak satisfactorily of the progress made during the past year. There has been a falling off, we observe, in the attendance on the classes for "ladies and gentlemen," and those classes have, in consequence, been necessarily closed; but while this fact is regrettable in itself, it is not of vital importance, and is compensated for by the full attendance reported in the artisan branch, and the increase in the number of school children receiving instruction through the agency of the institution. There is also a slight increase in the number of students in the employment of carpet manufacturers and designers, and to these students some stimulus has, no doubt, been given by the judicious liberality of Sir John Pakington and others in offering prizes for original designs for carpets and other subjects. Another admirable feature of the institution is the recently-added School of Science, the future utility of which may be estimated from the fact that thirty-four students, including several dyers engaged in the staple trade, have already joined the chemistry class. The finances appear to be in a healthy state, and the proceedings at the annual meeting show that considerable interest is taken in the success of the institution by those possessing the local influence necessary to assist in its progress.

Kent Association of Institutes and Clubs.—The scheme of examinations to be held in 1866 has been issued, and as our local institutions are one or two of them affiliated, it may be interesting to their members to know a little about them. These examinations are in connection with the Society of Arts, and are of two kinds, elementary and final. The elementary examinations are to be held on the 13th and 14th of March, and have a lower and higher grade, in neither of which the subjects appear formidable. The final examinations are held during the last week in April, and are open to those who have passed the higher grade of elementary examination. Prizes in books are offered to the successful candidates by the Association, varying in value from 20s. to 7s. 6d. The Society of Arts offers a large number of prizes, the highest being the Prince Consort's prize of 25 guineas, and none being of less value than £1. Such inducements should indeed prove sufficient to stimulate our young men in acquiring knowledge.

Pendleton Working People's Association.—There are few districts in which associations for the education or recreation of working men are carried on with such vigour as they are in Pendleton. On the 20th ult. the annual tea-meeting of the above-named association was held, and so great was the demand for tickets, that both the Charlestown Institution and the Pendleton Mechanics' Institution were crowded. The association was established only three years ago, but so rapid has been its growth that neither of these buildings is large enough for its operations, and for a length of time the necessity of procuring a more commodious structure has been felt. The President (Mr. W. T. Blacklock) gave an account of its operations in the past year. The number of members was 812. Ten thousand publications of a useful and instructive character, such as the *British Workman*, had been distributed to the members during the year. Tracts on household subjects, temperance, and religion had also been left weekly at 3,000 homes in the neighbourhood. In the penny bank £70 had been deposited in the year, being £13 more than in the previous year. The mothers' meetings, held weekly, had scarcely been so well attended as was desired. The night school and the winter lectures had been well attended, especially the latter. As to the financial state of the institution, those at its head set a good example, as they made it a point every year to clear off all debt. The institution would, however, be self-supporting were its benefits confined to the members, and no extraneous work done. The president, referring to the subject of erecting a Working Men's Hall for the purposes of the association, said they were very greatly indebted to the noble-minded proprietor of the Charlestown institution (Mr. B. Armitage), who, under proper conditions, had given them the use of it. (Cheers.) They, however, could not continue to use it to the extent they felt necessary, nor could they carry on the operations of the association without having a building within their own control, and one much larger. Last year he had told them that such a building would cost £800, but, on examination of plans, &c., they had found that it might be £1,200. This was a large sum, but they had a large-hearted public in Pendleton always ready to help those who helped themselves. Mr. Sugden, secretary, stated that subscriptions to the amount of £500 had been received towards the building fund. Mr. B. Armitage took the opportunity of this large assemblage to bring before them a matter in which he was personally engaged. The place in which they were met had been built with great expectations of usefulness. He now heard that it was the intention of the officers of this society to remove, and although sorry to part from them, he was glad that nothing less than an entire building would suit their purposes. It had struck him that their labours might be lightened to a great extent, and the results for good largely increased, were there the means of preparation through the education of the children. He was anxious to try the experiment of a day-school, and was preparing to open one and fill the room in which this meeting was assembled. The children would have the most competent teachers, and he did not think he could be charged with setting up a place in antagonism to other schools, as from statistics furnished by the Education Aid Society he found the room would not be able to hold the children in the neighbourhood who went to no school. The school would be in no sense denominational.

Great Meeting in Aldershot to Promote a Working Men's Club. — On Thursday evening, January 25th, a densely-crowded meeting of the working men of Aldershot and its neighbourhood was held in the Assembly Rooms of that town, for the purpose of hearing an address from the Rev. Henry Solly, of the Working Men's Club and Institute Union, London, on the subject of the club movement, and to take steps to form one in the town. The chair was taken by the Rev. Professor Kingsley, the author of "Westward Ho!" &c.; and on the platform were Captain Mangles, chairman of the South Western Railway Company; Captain Newcome, J.P.; Colonel Herbert, Assistant Quartermaster-General; Colonel Grahame, V.C., Commanding Royal Engineers; Rev. E. G. Rogers, M.A., principal Army Chaplain; Rev. S. C. Morgan, M.A., incumbent, and several other gentlemen, with many of the leading tradesmen of the town. Professor Kingsley, at some length, and in a most eloquent address, went into the subject which the meeting had to consider, and alluded, in terms of high commendation, to the publications issued on the movement by Mr. Solly, whose friendship, he said, he had the pleasure of enjoying; and also alluded, in similar terms, to the general work of the Working Men's Institute of London. The rev. gentleman concluded by an earnest appeal to the working men present to join this or some similar society. The Rev. H. Solly delivered an address of considerable force and eloquence, and thoroughly explained the working and objects of such clubs as that proposed, and enlarged on their admirable tendencies morally and socially. Resolutions in favour of the establishment of the club were afterwards proposed and seconded by Captain Mangles, Colonel Herbert, Rev. S. C. Morgan, Dr. Barker, and by Messrs. Bates, Bull, Flenn, and Hacker, as working men. They were warmly passed, and votes of thanks to Professor Kingsley and the Rev. Henry Solly were given amid prolonged applause. It was stated by one of the speakers that 250 working men were ready to join the club.

THE LABOUR MARKET IN THE COLONIES.

The *Sydney Morning Herald* says—"This market is more brisk, owing to the breaking up of the late severe drought. All descriptions of labourers are daily in attendance, for the present in excess of demand. Great numbers have been required for shearing, and

railway and other out-door works, and many are now ready for harvesting, just at hand. Female servants hire quickly for town or country. The current rate of wages remains as follows. With board and lodging, or hut room and rations:—Blacksmiths and carpenters, £50 to £70 per annum; married domestic and farm servants, £45 to £60 ditto; grooms, coachmen, and gardeners, £35 to £45 ditto; farm and garden labourers, £28 to £30 ditto; surveyors' men and ploughmen, £30 to £35 ditto; bushmen and rough carpenters, £35 to £40 ditto; porters and butlers, £34 to £40 ditto; shepherds and stockmen, £25 to £35 ditto; families shepherding from two to four flocks, £45 to £70 ditto; nurse and housemaids, £15 to £20 ditto; general servants, £18 to £26 ditto; cooks and laundresses, £26 to £30 ditto."

The *South Australian Register* says—"The father of Frederick the Great never begged more earnestly for 'a few tall grenadiers,' than our Crown Lands and Immigration office begs for good ploughmen and useful servant girls. Mr. Walcott, the Emigration Commissioner, writes that next to female domestic servants, agricultural labourers are the most difficult class of emigrants to obtain."

INDUSTRIAL EXHIBITIONS.

Dudley.—The inhabitants of Dudley, having successfully held an exhibition on a small scale in 1864, have determined to get up one of greater pretensions in the forthcoming summer, and to call it the Dudley and Midland Fine Arts, Scientific, and Industrial Exhibition. It is proposed to hold the exhibition in the Mechanics' Institution, and the Earl of Dudley has generously granted the use of his valuable gallery of pictures for the exhibition, and will aid the committee with his advice as to their arrangement.

Wisbeach.—The arrangements for the forthcoming Industrial Exhibition are progressing most satisfactorily. The applications from Lynn for space are nearly as numerous as those from Wisbeach.

Liverpool.—About nine months ago the members of the Working Men's Club at Liverpool resolved to "get up" an Industrial Exhibition, which was formally opened on the 22nd ult., at the Exhibition Rooms, Post-Office Place, by the borough members, Messrs. T. B. Horsfall and S. R. Graves, and the Mayor of Liverpool, John Farnworth, Esq. There are 451 exhibitors (who have also raised a guarantee fund of £189), and numerous amateur artisans. Many gentlemen have sent pictures and works of art to the exhibition, the paintings lent by one gentleman being valued at £16,000. The whole of the exhibition is insured for £30,000.

Second Working Men's Industrial Exhibition in Vienna.—The following communication has been received from Dr. Carl Helm, to whose exertions the successful introduction of Working Men's Exhibitions in Austria is mainly due:—"The favourable result of the first Working Men's Industrial Exhibition held at Vienna, in 1865, induces the special committee, with the sanction of the Imperial and Royal Board of Trade (given on the 1st December, 1865), to organise a second similar exhibition, to be held on the premises of the Imperial and Royal Horticultural Society, near the Public Park, in the months of August and September of the present year (1866)." Programmes of the proposed exhibition (in German) may be had on application to the Secretary of the Society of Arts, John Street, Adelphi, W.C.

Correspondence.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

WAKEFIELD EXHIBITION.

To the Editor of the Working Man.

Sir,—In the Working Man for January 13th, in an article headed "The History of an Industrial Exhibition," the success of the Preston Exhibition is compared with that of the Wakefield one, in order to show the superiority in point of visitors at the former. As a native of Wakefield, and an exhibitor there, will you kindly allow me space for some little qualification of the statement to which I allude? One thing, I think, has been rather overlooked, in comparing the attendance at Preston with that at Wakefield—viz., the fact that the Wakefield Exhibition was open only six weeks, whilst the Preston was open eleven. The total receipts, from all sources, at Preston, amounted to £4,710; the receipts for admission alone at Wakefield were £5,429 7s. 7½d.

An important feature in the Wakefield Exhibition was the distribution of medals and certificates of merit, a large proportion of which have been awarded to amateur exhibitors. As the result of these awards, a great variety of articles produced by working men—in their leisure hours—were shown. The Preston Exhibition, on the other hand, consisted chiefly of works of art, machinery, curiosities, &c.; no prizes being offered to stimulate competition amongst working men.

I think it scarcely fair, under these circumstances, to hold up the Preston Exhibition as the most successful in the provinces, unless success is to be estimated by numbers alone.—Sir, yours respectfully, J. S. Ainley.

Preston, Jan. 19th, 1866.

INVENTIVENESS OF THE WORKING CLASSES.

To the Editor of the Working Man.

Sir,—I do not think your views of the Inventiveness of the Working Classes (as published in your excellent paper of this week) convey that sound and truthful view that, in the opinion of the writer of this letter, the subject undoubtedly demands. I should hope, therefore, that in the spirit of fair play and truthful inquiry you will, in your next, give publicity to the following remarks:—

Your lament that no mighty inventions have crowned the unquestionably laborious inventions of those connected with Industrial Exhibitions, arises from the fact that it is only those who have actually invented something permanently good and useful that know the vast gulf that lies between vain imagination and reality. To me, sir, the Industrial Exhibitions have been full of invention: I have seen in them the actual and positive germ that must have time for its full development. I think, sir, it is most deplorable that the patent for an invention should cost such a sum that makes it impossible for an inventor, if a *bonâ fide* working man, to obtain the protection of the laws of the land he lives in. I am aware that many really valuable inventions (providing that safety from downright robbery could have been guaranteed) would have appeared on the stalls of our Industrial Exhibitions. Every invention of worth to mankind at large has, in times gone by, sprung from the working man. In most cases he has had to run the risk of losing all, of being called a madman or a fool; or, when successful, he is made a hero of. These extremes are bad. A good and cheap patent would be of the greatest use to working men of talent.—I am, sir, yours obediently,

Truth.

London, Jan. 22nd, 1866.

SUNDAY EVENING LECTURES AT ST. MARTIN'S HALL.

To the Editor of the Working Man.

Sir,—Having noticed, in your last issue, a letter purporting to come from "A Bookseller's Assistant," I beg to be allowed to intrude on your valuable space, and to correct your anything but unprejudiced correspondent, who, after noticing that the lectures "will be delivered by men eminently qualified for the task"—and, indeed, I cannot see how they could be otherwise, whilst they are unanimously acknowledged as the cream of the literary and scientific world—goes on to say, "Is it right such lectures should be delivered on Sunday evenings?" Now, if your correspondent had attacked their principles instead of their reputation, and have tried fairly to prove that they were wrong, either in a theological or scientific point of view, even then he could not have asked the question with impunity; and I should advise our friend to bear in mind the saying of an old philosopher, that, "that of which we know nothing we should say nothing." And here I cannot help noticing how much your "sensitive" correspondent knows about "the scheme being an affair of cash," considering the expense of six nights' rental of so large a place as St. Martin's Hall, notwithstanding the vile imputation against those eminent gentlemen who have taken the "affair" in hand; and although, as your correspondent observes, "it is noticeable that the name of no reverend gentleman appears in the programme," there are gentlemen who hold truth not less sacred than a bishop, and who can also afford openly and fearlessly to speak it.

I agree with your correspondent that this is a question which eminently concerns working men, and I should be glad if some of your readers would discuss the principles enunciated at the lectures in a fair spirit, without being personal. Apologising for thus intruding on your valuable columns, I am, sir, yours respectfully, Robert Roberts.

35, *Augustus Street, Regent's Park,*
Jan. 22nd, 1866.

To the Editor of the Working Man.

Sir,—"A Bookseller's Assistant," in your issue of Jan. 20, cannot see that such discourses as those now being delivered at St. Martin's Hall by such gentlemen as Professor Huxley, Sir John Bowring, and Dr. Carpenter, have nothing whatever to do with the celebration of Divine service at the same moment throughout the land. Will no kind and sensible effort to instruct and improve working men, which at the same time directly advances their more material interests, by withdrawing them from the many evil influences and associations of the public-house, find favour with over-scrupulous people, but such as are conducted under the roofs of churches and the patronage of reverend gentlemen?

Many working men will profit by these discourses who would otherwise spend their Sunday evenings in public-house parlours or in reading the Sunday papers at home, even while Divine service is being celebrated throughout the land. Would your over-sensitive correspondent rather have them so than at St. Martin's Hall, hearing Divine truths in science and philosophy imparted to them by men eminently qualified for the task?

I dare say many of your readers besides myself would like to have more than an assertion that "the scheme is an affair of cash, after all." Your correspondent is certainly not very discreet in making an accusation of catch-penny-ism which implicates a host of gentlemen in whose intellectual and moral worth the highest confidence is placed. I do not think, sir, that I am over-sensitive in repelling this insinuation against their integrity and disinterestedness.

Perhaps your correspondent will inform us more fully, who are not so susceptible of jars, although we may have to pass a dozen or more gin-palaces on our way to St. Martin's Hall, of what he finds so reprehensible in these discourses, that, in his opinion, render a sanctimonious gloss of sacred music necessary to screen it.—I am, sir, your obedient servant, Mac.

Jan. 20th, 1866.

[We have received several other letters, advocating each view of this subject; but the preceding sufficiently express the opinion of the supporters of the lectures, in opposition to those persons who share the convictions of "A Bookseller's Assistant."]

THE DIFFUSION OF CO-OPERATION.

To the Editor of the Working Man.

Sir,—I have perused with much pleasure the article on "Diffusion of Co-operation" in your last issue, and sincerely hope it may have the desirable effect of drawing the attention of the industrial classes more fully to the beneficent influence of that principle on their social position. The example set us in the north of England, France, and Germany, of the extension of the principles of Co-operation to production as well as consumption, should make the workers in this vast hive of business, London, reflect on the means and opportunities that lie ready to their hand for the application of the principle to each particular trade. Manufacturing societies composed of working men, with a small capital for a start, subscribed by a weekly sum paid towards a share, would at once step into the position and profits of the trade, working employers thus gaining one round of the ladder; and, "looming in the future," can we not see the topmost step attained, and a division of the profits of labour agreed on that shall be at once just to the capitalist and the labourer? The ground is already manured: it requires but to be tilled and sown with earnestness of purpose, and, as the genial sun and the dews of heaven from the tiny seed bring forth goodly fruit and the stately tree, so may such an undertaking, however small in the beginning, foster a society whose wide-spreading branches will shelter the old age of many of us from the chilling blast of poverty, and whose fruits shall refresh the weary toiler in his struggle for domestic comfort and happiness. The large trade associations that exist and are now forming throughout the country prove the wide diffusion of that essential requirement of Co-operation—unity, and a brotherly feeling among fellow-workers. There is no doubt in my mind that these associations for the protection of trade will have a good effect upon the moral as well as the material well-being of the wage classes generally; and it behoves the Legislature of this country to recognise the great fact of their existence, by taking some measures to legalise them under certain conditions, such as provision for arbitration in the settlement of disputes with employers, &c. If we cannot go forward with the giant's stride, let us be content with the shorter step of the pigmy, taking small account of how slowly we move, so that it be in the right direction.—I am, sir, yours respectfully,

Edward Meads,
Secretary of the Co-operative Cabinet Manufacturing Society.

North-East Workmen's Club, 64, Murray Street,
New North Road, Jan. 21st, 1866.

P.S.—I should be glad to receive communications from cabinet-makers wishing to know the principles of this society.

The Birmingham Exhibition.—We have received a letter from Mr. Lucas, secretary to the Exhibition Committee, denying the statements made by Mr. Gillman, in No. 2 of the Working Man; but we conceive that the letter by Mr. Everard, published in our last number, is a complete and sufficient contradiction of the assertions made, and renders the publication in full of the Secretary's refutation superfluous.

TO CORRESPONDENTS.

A. C—ns—rh.—Your song is very creditable, but not adapted to the columns of the Working Man; it might suit a newspaper.

A Working Man.—To take out a patent, you had better employ a respectable patent agent, resident in London; first ageing what the charges for agency shall be.

B. H.—Any modern elementary treatise on locomotives will supply the information you require. If you study the principles of construction, you can readily ascertain the consequences of any part breaking or becoming displaced.

A Well-Wisher (Dublin).—The manufacture of convex watch-glasses employs the population of a small village in France or Germany, we forget which; but we shall procure the details, and publish them in this Journal.

B. F. H.—You must first make sure that your invention is original, by examining the specifications published at the Patent Office; then you can take out a provisional patent, which costs about £5. We see no other way of protecting your invention.

W. B.—We cannot undertake the responsibility of recommending any private building society.

R. Nurse.—Mr. Weil's improvements in electro-metallurgy are not patented. They are so simple in practice that it is hardly necessary for you to take any trouble to see them in operation.

A. V.—The monogram on your engraving is that of Albert Durer. Copies are by no means scarce, and can be bought for half-a-crown.

G. M.—If there is no rule in such cases, twenty-four hours afterwards would be the time allowed.

Skuttee.—At present, M. Tremeschini's lamp can be obtained only in Paris. It will probably be for sale in London.

Det.—The Working Women's College is in Queen Square, Bloomsbury. There is a writing class in operation. We shall have much pleasure in replying to any other question you may submit. You had better apply for a programme of the studies pursued at the college.

A Working Man (Pembroke Dock).—We cannot offer any opinion as to the safety of the coal company named. You must make due inquiries, and judge for yourself.

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Working Men's College
BUILDING FUND.
STATEMENT BY THE COUNCIL.
45, Great Ormond Street, December, 1865.

This College was founded in 1854. The students are, for the most part, working men, and the teachers are, in general, members of the Universities and of different professions, or those who have themselves been students in the College. Its purpose was and is to unite these classes together, by associating them in the common work of teaching and learning. It provides instruction at the smallest possible cost (the teaching being almost wholly unpaid) in the subjects with which it most concerns English citizens to be acquainted, and thus tries to place a liberal education within the reach of working men.

In carrying out these objects we have had some measure of success. The number of students was, at the end of the first term, 145; it is now 509. With the increase in the number of students has come an increase in the number of classes, and for some time past we have been sorely pressed for space.

We want chiefly these things:—(1) A room or rooms for the Art Department. [No department of our College has been more successful than our Art Classes, carried on from the first under the general supervision of Mr. Ruskin.] (2) A moderate sized hall or room for general meetings, lectures, and social purposes, capable of containing some 300 or 400 persons. (3) A better room or rooms than we have now got for the Adult School. (4) A room to contain a Museum, and serve as a Natural History class-room. (5) More small rooms for classes.

A site is already provided, the ground in the rear of the house (12,000 square feet in area) being the freehold property of the College. We are advised that such a building as the one we require can be well and substantially built in a plain but good style for about £3,000 to £3,500.

Financially, the College is self-supporting. For several years, thanks to the excellent administration of our funds by a Students' Finance Committee, the income from students' fees has met our current expenditure, leaving a margin available for the reduction of our mortgage debt.

Considering the vast endowments which the benefactions of former ages have provided for the education of the people, endowments to which the wealthiest of us are the most indebted, it would be a disgrace to a wealthy metropolis like this if it were necessary to beg long at the present day for the inconsiderable sum we are now asking for. And the amount of labour and thought which is being voluntarily devoted to the undertaking, and by none more freely than by our students, affords, we think, some guarantee that we shall not misspend what may be given us. Finally, though many a single purse might well defray our needs, we may perhaps especially commend them to those who would be willing to take part in the teaching of this and other colleges if they were not prevented by professional and other avocations. Will they not share our work by helping us to develop it?—Signed, on behalf of the Council of Teachers,
F. D. MAURICE, Principal.

Contributions may be sent to the London and County Bank, Oxford Street branch ("Working Men's College Account"); to the Secretary, at the College (P. O. Orders to be payable to Thomas Shorter); or by cheques payable to the order of the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple, or to any member of the Council of Teachers.

Donations to the amount of £350 have already been received or promised, including, among others, the following:—

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[14

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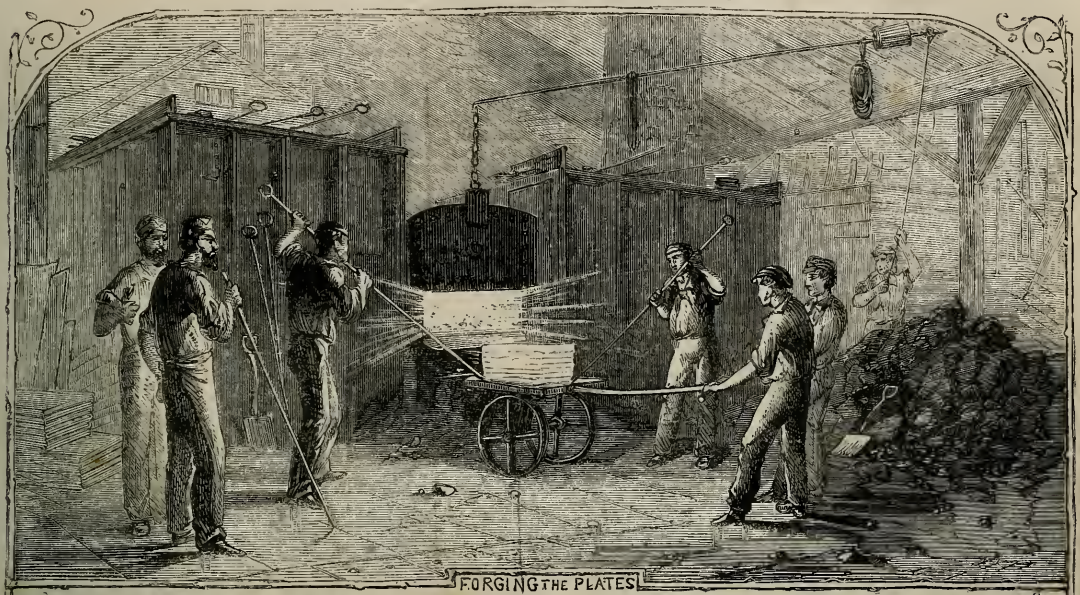
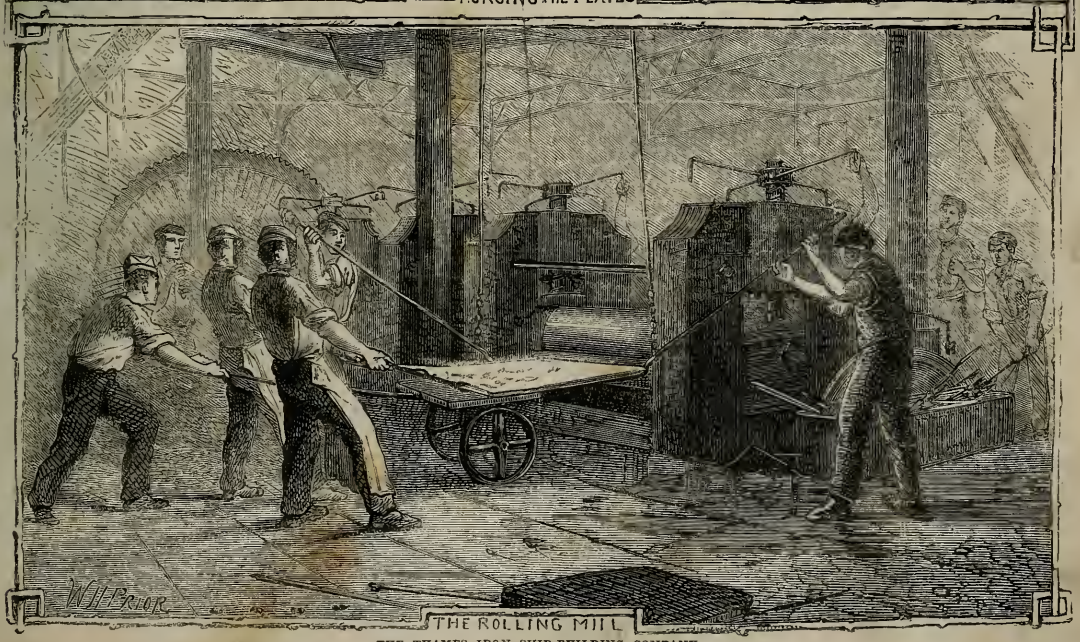
VOL. I.—No. 6.] SATURDAY, FEBRUARY 10, 1866. (PRICE 2D. (STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.





THE THAMES IRON SHIP-BUILDING COMPANY.

Iron Ship-Building.

THOSE who are old enough to remember the appearance of the various British ship-building yards during the period when the use of iron as the principal material in the construction of ships and steamboats was as yet a thing of the future, can scarcely fail to note the remarkable changes which of late years have taken place in many of these establishments. The myriads of carpenters, sawyers, caulkers, and various other artisans which the building of a wooden vessel seldom failed to call into existence, have disappeared, to be replaced by miniature armies of swart-featured, brawny-armed mechanics, furnacemen, blacksmiths, hammerers, rivetters, roller-men, and other trades, which form the rank and file of our great

iron industry. This transformation, though slow at first, was inevitable. Incredulous as ship-owners were at the beginning, it was not long before they began to perceive the advantages which iron ships possessed over those made of wood; but they certainly were not prepared suddenly to adopt the new system. Their plan was, not to supersede the wooden vessels actually in use, but rather to wait until new ships were wanted, and then to have them built of iron. But the enormous development of our commercial system, occasioned by the free-trade policy of the Government, produced an increased demand for vessels—an increase so extensive that the ship-building yards which crowded the shores of the Thames, Tyne, Mersey, Clyde, and other British rivers, could scarcely keep pace with it. Glasgow claims the honour of being the first to commence the trade of iron ship-building; but Newcastle, London, Liverpool, and the other ship-building depôts, did not lag behind their northern sister, and the construction of the *Great Eastern* caused the Thames to carry off the palm for mechanical enterprise and skill, so far as the building of iron ships was concerned. The success attendant upon the completion of the magnificent specimen of maritime architecture alluded to by us, gave a fresh impetus to the iron ship-building trade, and led to the formation of such gigantic establishments as that known as the "Thames Iron Ship-Building Company." The works of this association are situate at Blackwall, and form a prominent object to the steamboat passengers journeying to and fro between Greenwich and Woolwich. The various slips leading to the river are occupied with vessels in different stages of progress—each ship being surrounded by an intricate mass of scaffolding, which ceaselessly vibrates with the shock of the workmen's ponderous hammers, as stroke upon stroke rings upon the massive bolt-heads with which are riveted together the enormous plates used in forming the sides of the vessels. Entering the works from the land-side, the effect upon a stranger is at once startling and impressive. Look around where he will, all is bustle and activity. There are the forges hissing and rearing away as if they gloried in imparting a fiery glow to the iron; there are the rolling mills, where the stubbornness of the metal is overcome, and it is made to glide forth in sheets of the desired thickness; while in yonder range of workshops, the iron is being cut, bent, twisted, hammered, filed, and polished into almost every conceivable form and size. There may appear to be a little too much hammering; but it must be remembered that unless even the minutest portion of the maritime structure be made in a sound and workmanlike manner, the safety of the whole is endangered. A single defective bolt, or a single faulty plate, may occasion the destruction of the vessel. On the contrary, when every portion of the ship has been properly fashioned, her advantages soon become apparent. Bulk for bulk she is lighter than her wooden rival, and less liable to become arched; while in striking upon a rock, she will escape with an indentation, where a wooden vessel would be dashed to pieces. The great danger which besets an iron vessel is its liability to founder, as shown in several recent well-known cases; but this can be obviated by the use of air and water-tight compartments, several of which may be stove in without endangering the buoyancy of the ship.

The Thames Iron Ship-Building Company is one of those few associations which not only build ships, but likewise manufacture the iron used in their construction. At the Blackwall establishment the massive plates and angle-iron, of which the hulls of the ships are formed, are rolled by means of powerful machinery. There, also, the iron armour-plates, which form the coating of the ships' sides, are forged by means of gigantic steam-hammers. There are two rolling-mills, worked by machinery of enormous strength, in one of which is produced the armour-plates for the hull and sides of the ship, and in the other the various kinds of angle-iron. The process of rolling is interesting. During the time required for heating the immense mass of iron, preparatory to its being rolled into iron plates, the various lumps of iron in the glowing furnace are from time to time carefully inspected by the furnace-man, who keeps guard, like some stalwart Titan, over the fiery scene. This inspection is accomplished with the assistance of a small aperture made near the top of the furnace door, and through which he is enabled to look when required. When the iron has been made sufficiently hot, the roller-men and their assistants make their appearance, for the purpose of removing it from the furnace to the rolling-mill. This is a process as dangerous as it is grand. The metal, heated to whiteness, as it is drawn from the furnace, presents a dazzling appearance; the heat and brightness emitted being so intense as to render it a marvel that the workmen should be enabled to approach the iron so closely as they do. Indeed, the effects of the intense heat and light are considered to operate prejudicially on the health of the roller-men and furnace-men, who, as a class, are extremely steady and sober; the use of alcoholic liquors—at least, during the hours of labour—being found, from experience, to aggravate the injurious physical effects produced during the removal of the heated metal. Many of the healthiest men employed in the iron works of the kingdom are total abstainers.

The mass of iron being carried, by means of a truck, as shown in the engraving, to the mill, the process of *rolling* commences. This is a striking sight—the comparative ease and facility with which the ponderous mass of iron is managed being almost wonderful. Upwards of twelve men are generally engaged in assisting in this process. They are divided into two sets. These occupy the two sides of the rolling-mill. The first set, taking up the heated metal, place it between the rollers, which rotate at a moderate speed, and seem eager to devour it. Yielding to the powerful pressure to which it is subjected, the metal glides between the rollers, and issues, considerably reduced in thickness and converted into plate, on the other side, where it is speedily seized, with the assistance of large pincers, by the second set of workers, who pass it over the rollers to the first set of workers, by whom it is again passed through the rollers, to be again returned and rolled, until it has been reduced to the required thickness. The attitudes of the men while thus engaged in these operations are both graceful and picturesque, and our painters might find worse studies of the human figure than those to be obtained in a rolling-mill. The principal roller-men have their features covered with thick masks, for the purpose of protecting them from the heat. During the process of the first rolling, the boys in attendance are provided with birch brooms well saturated with water, with which they carefully brush the surface of the iron as it passes through the rollers, thus removing any incrustation which might be formed, the effects of such incrustation being to harden the iron, and thus retard the process of rolling. The illustrations represent the large furnace where the iron is heated, and the rolling-mill, in which it acquires the thickness to which it is destined.

At the Blackwall yard the iron is manufactured from old scrap metal, of which London is the great mart. The scrap iron, after being carefully picked, and cleansed from all extraneous substances, is piled upon a slab of wood, placed in the furnace, where it is heated to the welding point, hammered under the forge hammer, and then rolled into roughly-shaped bars. These bars are then cut into pieces of a convenient length, and a "pile" formed of the same. The pile is again heated in the furnace, again hammered, and again rolled, but this time into *angle-iron* of the required dimensions. If *plate-iron* be wanted, the original "pile" or "bloom" is rolled into a rough plate, and another pile, composed of two such plates—one for the top, the other for the bottom, of the plate to be made—with bars placed between, is heated in the furnace, and subsequently rolled into a single plate of the requisite thickness. In rolling plates, only one pair of rollers is employed. These rollers are perfect cylinders, and are made to approach or recede from each other by means of screws, as shown in our illustration. For *angle-iron*, a large number of rollers, suited to the various dimensions of the different articles, are required, the rollers being changed as often as it may be found necessary. After being subjected to the rolling process, the plate and angle-iron are taken to the *shearing machine*, where the rough ends and edges of the metal are cropped off, and each bar or plate cut to the form and size desired. They are then conveyed to the various workshops, to undergo the remaining processes necessary before they can be used for their destined purposes, and which processes we intend describing in another number.

A Possible Solution of the Dear Meat Question.

A good precept is very good, and can hardly be too much commended; but it is, after all, the practice which saves. Judging from the correspondence which has already reached us, there is a desire in more than one of the metropolitan districts to extend the practice of Co-operation. In the populous field of metropolitan life there is certainly room for a few experiments.

In one district there is something being done in the way of a Clothing Store; and a desire exists to attempt an extension of operations in the direction of a butcher's or tailor's shop. It happens that a butcher's shop is a form of Co-operation generally found to be tardy in paying profits. It does not quite appear why this should be the case. Nothing is commoner than the existence of small butchers' shops, which are manifestly self-sustaining, or they would not continue open in such numbers. If a Co-operative Store, opening a department for the sale of meat, were to do as the small butchers do—buy their joints from the wholesale carcase dealers, selecting their joints judiciously to suit their market—there is no reason why they should not make profits as well as the small retail dealers. But most young stores begin by slaughtering cattle themselves, and unless they are able to slaughter three or four animals—oxen, sheep, and pigs included—they have not variety enough for their miscellaneous customers; and if a young store provides the due variety of joints, there is fear that they may not have customers for all; and as meat will not keep, like leather and cloth, the butchering department of a young store often comes to grief. If, however, the directors of the society are sensible fellows, they look out for a friendly carcase butcher, who will accommodate them as to quantity and variety; then they are sure to make a profit. A sharp-eyed butcher can tell what the co-operators can sell, as to quantity, quality, and variety of joints, the moment he sees the neighbourhood where the store-shop is situated. He can tell this much better than the directors can. In business, an ounce of practice is worth a pound of speculation. A practical butcher, though he may neither be a statistician nor a mathematician—although he may never have heard of Nelson nor De Morgan—can calculate, at a glance over a neighbourhood, what appetites the inhabitants have, what joints they will prefer, and how much a pound they will be willing to pay for what they want.

If the object were to go into meat selling on a large scale, and establish a Co-operative Meat Society, a different course would require to be pursued. We should say that in no department of provision selling is there so wide and favourable a field open at this time in London as for the sale of meat on Co-operative principles. Generally speaking, meat is of a very uncertain quality, but of by no means uncertain price. It may not be good meat you buy, but it is sure to be at a good price. Now, a large Co-operative Society, which guaranteed Londoners good meat, would be believed, and they could fulfil their promise, and command the best customers of the whole metropolis. There is, in all conscience, scope enough for improvement, both in killing cattle and for taste in displaying meat. Butchering is one of the barbarous arts which yet remain disfiguring our civilisation, and presenting a reproach to common humanity. There is scarcely a butcher's shop in London which does not make you sick; nor a slaughter-house which does not make you shudder.

Among the eminent friends of Co-operation in England, one of the most distinguished—Professor Francis William Newman—condescended to take interest in the celebration of the opening of the great Halifax Industrial Society's Buildings, in the hope of inducing the co-operators to commence improvements in the modes of slaughtering animals. Dr. M'Cormac has demonstrated that cattle might all be slaughtered without pain, and with great advantage to succulency of the meat. As much as twenty per cent. in the weight of the saleable meat would be gained by the process, besides an increase in nutriment. Humanity and economy both recommend the improvement, but as yet no great store, nor, indeed, any small store, has ventured upon the change. Who would care for Co-operation if it proves to be as

sluggish at improvement, or as timid about change, as ordinary competition? No gentleman nor workman of humanity can relish a mutton chop or a beefsteak, if he once happens to reflect upon the horrid way in which it has come to him through the butcher's hands. Nobody ventures to refer to the process in the household, or the natural sensibility of women would be painfully shocked by the thought. Butchers generally are not given to philosophic reflection or scientific experiments, and few of them can be expected to commence an improvement in this respect. Even those who have been made sensible of its practicability and of its economic advantages, are afraid to attempt the experiment, lest ignorant customers should take alarm, and fear to eat the meat. But co-operators who turn butchers have a terror of the trade, and mostly shrink from it. One would think that they would turn with eagerness to an improvement which at once saved their feelings and doubled their profits. But no one can fathom the dense stolidity of English prejudice. The people cling to an old way, even when they see it to be a barbarous and brutal way. Any one would say that the hard-living, hearty, robust-minded Lancashire or Yorkshire workman would not hesitate to adopt an improvement in diet, although it was new; yet, as an Oxford proclamation puts it, "so it is."

Now, a public Co-operative Company could accomplish the change needed by a stroke of audacity, and make a profit by their courage. A prospectus which proposed to kill cattle on the new system would attract more attention than Dr. Dauglish's system of aërated bread. Public intelligence and cultivation are ripe for the change. The press would support it. The opinion of eminent medical authorities could at once be obtained, which would satisfy the dietetic scruples of the most uninformed of the public. The company could erect new *abattoirs*, such as England has never seen, and such as Napoleon I. never dreamt of, who was the first monarch who attempted improvement in this matter. The press would give publicity to so great and creditable a change; for nearly all the sanitary nuisance of slaughter-houses is occasioned by the present vile and wasteful modes of killing. The company, like two of the great co-operative stores of the north, and, indeed, several minor ones in the midland counties, could rear their own cattle, and co-operative cattle might be an improved breed, as co-operative houses will one day be of an improved style. There is great room for improvement in cattle-breeding for the market, over that kind which the ignorant prejudice of butchers now keeps up. The carts of the Co-operative Meat Company might be seen all over the metropolis in two years, and if the profits of the company were divisible on purchases, as in the ordinary co-operative stores, the custom would be immense, the profits unexampled, and the public good accomplished incalculable.

In these days of Bread Companies, Milk Companies, and Liebig Essence of Beef Companies, it is wonderful that there is no Co-operative Meat Company. Every year the consumption of meat is becoming an enlarging item in every family—thanks to Free Trade, to Mr. Gladstone, and the increasing prosperity of the working classes. It is quite time a great Co-operative Meat Company took the field in London. It would soon solve the vexed question of dear and diseased meat, and set an example that might be followed in every town in the kingdom with immense advantage to the whole working-class population. Are there no young noblemen of public spirit and social sympathy to set the thing on foot, if men of business do not move in it? Mr. E. O. Greening, Dr. Watts, and Mr. Max Kyllmann could accomplish such a benefit for Manchester. We could name other persons in other towns who could do the same thing were their attention called to it. London ought to possess persons capable of this. The Leeds Flour Mill is computed to save the working classes of Leeds many thousands a year in the price of their flour, they having paid much less for long years than they would have had to pay had there been no Co-operative Flour Mill in Leeds. A Co-operative Meat Mill, or rather Meat Distributing Store, would soon save the working classes of London annually a sum tenfold that which Leeds has saved in cost of flour. Really, as despairing politicians used to say to Lord Melbourne, "something ought to be done."

History of the Working Men's College,

45, GREAT ORMOND STREET, QUEEN'S SQUARE, LONDON.

BY WILLIAM ROSSITER, SENIOR FELLOW.

III.—THE ORGANISATION AND SOCIAL LIFE OF THE COLLEGE.

Our College opened in 1854 with 130 students; it has now 400. It began with a small house in Red Lion Square; it has now a large one in Great Ormond Street, and is collecting funds towards building a large hall for its general meetings, and a studio, worthy of the name, for its drawing classes. It began with twelve classes; it has now forty; and, in addition, an evening school of 50 men; three vocal music classes, with 130 members; three companies of a rifle corps, numbering 120 men; and a registered benefit society.

These, the results of eleven years' work, are the consequences of the College being founded on a principle that working men can understand, and value more and more as they understand it better. It appeals to them, not merely to come and learn mathematics or grammar, physical science or history, but to enter a College, to become members of a society, the objects of which are thus officially stated:—

The College was founded in 1854. The students are for the most part working men, and the teachers are in general members of the universities, and of different professions, or those who have themselves been students in the College. Its purpose is to unite these classes together, by associating them in the common work of teaching and learning. It provides instruction at the smallest possible cost (the teaching being almost wholly unpaid) in the subjects with which it most concerns English citizens to be acquainted, and thus tries to place a liberal education within the reach of working men.

The education offered by the College is thus defined to be of a twofold character: (1.) An organised system of instruction; (2.) The education of the College social life.

The organised system of instruction is divided into five departments—Art, History, Language, Mathematics, and Physical Science. These are subdivided thus:—

Art	*Drawing*, from casts and natural objects, drawing and painting from life.
	Singing: part singing from notes.
History . . .	*English:* general, constitutional, and social.
	General: ancient and modern.
Languages . .	*English, French, German, Latin, Greek,* Grammar, literature, and composition.
Mathematics .	*Pure:* algebra, geometry, trigonometry, conic sections.
	Applied: mechanics, hydrostatics, optics, astronomy.
Physical Science	*Physics:* inorganic and organic chemistry, heat, electricity, magnetism.
	Biology: vegetable and animal physiology, botany, zoology.
	Geology, including mineralogy and palæontology.

This list is put before us when we enter the College, but we are not advised to attempt all at once. On the contrary, we are specially advised to work in only one department at a time. A new man, on joining, writes his name, occupation, and address in the College Register, and pays half-a-crown. He is now one of the lowest class of College members, that of matriculated students. By attending during four terms, and passing, at the end of that time, an examination in some one subject of study (as English grammar, algebra, or botany), he enters the second class, that of certificated students.

The certificated student may next become either an associate or a scholar, or both. To be a scholar, he must have attended the College for two years, and pass a thorough examination in all the subjects of one department of the College; thus he may be a scholar in mathematics, in history, in physics, &c. &c. To be an associate, he must also have attended for two years, but his studies, instead of being confined to some one department of the College, must be extended to all the more important. Thus, besides obtaining certificates in any two subjects, he must show himself possessed of a fair knowledge of Bible history, of the history and language of his own country, and of elementary mathematics.

Thus the scholarship means extent of knowledge, the associateship breadth of education. The scholarship leads to no higher degree; the associateship is generally the stepping-stone to a Fellowship and a place on the Council. The different grades, and their relative position, are shown thus:—

Student.
|
Certificated Student.
|
Associate. — Scholar.
|
Fellow.
|
Member of Council.

The earlier grades are open to any student who can pass the requisite examinations; but the more important degrees of Fellow and Member of Council are conferred only by election on the part of the Council, who, in their choice, have more regard to "moral qualities, a capacity for teaching, and a willingness to teach," than to proficiency in study.

The governing body of the College, the Council of Teachers, consists of the founders, the regular teachers, and such students as have passed the Associate Examination and been thought worthy of election to Fellowships and the Council.

The fundamental theory of the College declares that the teachers and pupils shall form an organic body deserving the name of a college. With this in view, it was determined that social and political studies should be the primary part of its education. It has both failed and succeeded in carrying out this design. Excepting in the Sunday Bible-class, under the Principal, which has never broken down, the College has failed to establish a systematic course of human studies; but every thoughtful man among us has heard enough from our Principal on ethics, politics, and history, to make him more thoughtful—to show him that the kingdom of which he is born a subject, and the family of which he is born a member, are not only of man's making; that the laws which govern the inter-relations of men and of nations are not to be understood by a week's light reading, or enunciated, *ex cathedra*, with one's back to the fire.

We are thus enabled, on one hand, to estimate aright frothy demagogues and wordy "popular" lecturers; on the other, we are taught to regard our fellow-citizens as such, to look upon our juniors as rising members of the state. This gives a coherence to our College friendships, and a foundation for its social life, and has led, as one practical expression of it, to the formation of our Rifle Corps, the first working man's corps established.

Owing its name to its being founded especially for the education of manual workers, and from its arrangements being specially intended for them, our College, remembering also its object of uniting together the different classes of society, receives all who will sit and learn by the side of hand-workers, and be called by the name of working men.

This is the foundation of our social life—the life which distinguishes our College from evening classes or mechanics' institutes. It contains students of all classes—artists, teachers, clerks, tradesmen, artisans, shopmen. All these meet in the coffee-room, at the gymnasium, the boxing or rowing clubs, and in other scenes of our social life, on terms of perfect equality. Our two hundred head-workers mix with our two hundred hand-workers, not knowing until a man reaches some distinction in the College to which class he belongs. In this intellectual competition the hand-workers have hitherto had slightly the advantage in numbers.

The other great point in the fundamental theory of our College is that it shall be self-supporting. In this also it has both failed and succeeded. It has not entirely paid its own cost, though the fees have generally sufficed for the current expenses. We have never, until now, had to ask for money, as any want has always been at once met by the voluntary subscriptions of our own friends; and we ask now only because the increase of numbers and of classes render new buildings absolutely necessary.

But the great success of the self-supporting theory is in the spirit of work for the College that it has called out in the students, by whom the whole of the management and a great part of the teaching is carried on. Thus the College not only teaches its pupils, but trains up within itself its own teachers and managers.

The London Working Men's College is not the only one, neither was it the first. The Father College—the oldest of all—the People's College at Sheffield, was established in 1842, by an Independent minister, the Rev. R. S. Bayley, who, for several years, taught nearly all the classes himself, meeting them both morning and evening. On his leaving Sheffield, in 1848, his students (all young men) resolved to carry it on, and to keep it both self-supporting and self-governing. This they did, refusing all offered donations; and, beginning with a halfpenny candle in an ink bottle as their only apparatus, in ten years they raised in fees above £4,000, and are still at work.

The Halifax Working Men's College was first established as an evening school by Mr. Akroyd, M.P., but the foundation of the London College suggested to him the idea of further development. The number of students is some 300, besides a Young Women's Institute with 200 members, and a branch class at Copley of 50, men and women. The course of studies is practical, consisting chiefly of English and scientific subjects. The students have been very successful at the examinations of the Society of Arts, and of the Science and Art Department.

The Salford College was founded, in 1858, by Mr. D. Chadwick and others. In 1859 they raised £800 to purchase the building of the Salford Mechanics' Institute, which they re-named. This college is remarkable for its democratic government, its simplicity of arrangement, and its decided success. Its classes may be summed up as teaching English and science; so that its success is, doubtless, owing to the practical nature of its work. Its students are about 400; and, in addition, it has large day-schools for boys and girls.

The Manchester College was also founded in 1858, by Mr. Greenwood, the Principal of Owen's College, Mr. Gaskell, and others. In 1861 it was incorporated with the evening classes of Owen's College, the fees of which were reduced from £1 1s. to 15s. per session. The course of lectures comprises languages, mathematics, history, and physical science, as a preparation for the University of London. The number of students is about 300.

The Working Men's College at Ipswich was established in 1862, by Mr. Barrett and some other students of the Mechanics' Institute, helped by Dr. Christian, Mr. Ransome, and others. The foundation of this was also suggested by the example of the London College. Its number of students is 150, studying English subjects. This is the youngest, but also one of the most active, of the country colleges.

In London, besides the Working Men's College, there are the Evening Classes at King's College and the City of London College.

The King's College course comprises the subjects required for matriculation and degrees at the University of London. The fees are £1 11s. 6d. for each class for the winter session, and £1 1s. each for the summer session.

The City of London College was founded in 1861, the Metropolitan Evening Classes—founded in 1848—being incorporated into it. The number of students is large, over 800. The chief classes are in modern languages, mathematics, and English subjects. The college is liberally supported by City bankers and merchants, and its chief object is to provide for the clerks and other young men in the City a commercial education of a high character. In this it has been eminently successful. It avails itself, to a great extent, of the examination scheme of the Society of Arts.

Our London Working Men's College differs in some respects from any of these. It is in opposition or rivalry to none. Its speciality is, that it offers to its students not only the intellectual, but also the social training hitherto confined to Oxford and Cambridge. It provides education for a working man of every capacity. Whether he wants to learn his alphabet and to count, or to qualify himself for a M.A. degree, he will find what he wants—both men to help him to learn, and others to learn with him.

Loss of Life in Towns.

In the address to our readers in the first number of the Working Man, wherein we laid down our intended plan of operations, we alluded to the subject of sanitary science as one which would necessarily be included in the programme of a Journal devoted to all that pertains to the welfare of the working classes. And few topics there are of more vital importance than the consideration of matters affecting the health of the community generally. By consequence, therefore, the largest section of the community—that section, in truth, upon whose labours the well-being of all classes of society so greatly depends—has an immense concern in being fully acquainted with every particular which helps to show what causes tend to shorten the duration of human life under certain conditions, and how those causes may be removed.

Like as in all other departments of social science, it is of primary need that accurate and judicious observation be the groundwork upon which such information rests. Without care in this respect, statistics are full of openings for fallacious deduction as well as for erroneous inference.

It will be our object, therefore, to obtain from trustworthy sources — from officially accredited facts, indeed—such data as may be relied upon for all purposes. We shall "nothing extenuate, or set down aught in malice;" but, by clear and impartial treatment, we hope to vindicate the character of our subject from the charge of being dry and uninteresting, as it is commonly supposed to be.

We propose in this first article to speak of the comparative healthfulness of our principal cities and towns; leaving for subsequent consideration an examination of the influence of density of population, of occupation, and of other causes, upon their death-rate.

Great cities offer the most comprehensive means of studying the relative vitality of mankind in states often unfavourable to health, and under conditions entirely opposite to those of the pastoral age. In a country of limited area, inhabited by a race whose intelligence increases in a constant ratio with its numerical increase, the tendency of the people will be to aggregate themselves round large centres. So cities spring up with wonderful rapidity, and attract within their walls the cream of the brain and hand-force of the surrounding country: unhappily, the dregs follow, as a matter of course. The growth of some of our large towns, and the consequent decrease of our rural population, are amongst the most striking of the "curiosities of civilisation;" and the extent to which this massing of the people will further proceed is a problem perplexing enough to satisfy the profoundest thinker. Millions of men are thus abnormally placed, keeping up a perpetual contest with all the various elements which Nature brings to bear upon every instance of the infraction of her laws. Man, as originally created, breathed the pure air of heaven, and drank of the undefiled waters of the earth. Now he dwells in crowded cities, where the air is poisoned by noxious exhalations, and where water free from impurity is unobtainable. A return to the patriarchal mode of life is neither possible nor desirable; and nothing remains, therefore, but to mitigate, as far as human efforts will avail, the evils arising from the changed condition of mankind. To this end, the fullest information as to the nature and extent of those evils is necessary: leave aught to conjecture, and the result is infinite mischief at some time or other.

The past year affords ample illustration of this truth in the alarms which have troubled the inhabitants of Continental cities at the appearance of epidemic disease. Even to our own land the dreaded name of cholera has wafted, awaking vividly in our remembrance the visitations of previous years; but in place of vague rumours and exaggerated statements, we fell back upon our published figures and past experience, awaiting with calm determination the attack of an enemy whose evil power the most thoughtless among us acknowledges.

London may justly, and with honourable pride, point to the elaborate fulness of detail in which, ever since the passing of the Registration Act, the vital statistics of her mighty population have been published weekly without a single intermission—a publication conducing to the most valuable results.

It is to be hoped that the rulers of Continental cities will soon awake to the knowledge that nothing is gained by concealment, and will cause the facts which relate to their social condition to be published in a form which will admit of comparison with our own.

Until recently, indeed, London stood alone in furnishing a weekly analysis of the births and of the causes of death amongst its citizens. But at the commencement of the past year, the Registrar-General was enabled, by the aid of the local registrars, and by the co-operation of the Registrar-General of Scotland and Ireland, to give in his weekly return a statement of the births and deaths in some of the principal cities and towns of the United Kingdom. The health of these cities is a question of paramount importance. In some of them the population increases with exceeding rapidity, and in nearly all, the density rate shows already a deficiency of house accommodation which writes its own story on the mortuary records. Week by week, then, the properly constituted officers can watch the rising or falling of the sanitary barometer in their respective towns, and are thus enabled to apply themselves promptly to the suppression or mitigation of any cause operating unfavourably to the public health.

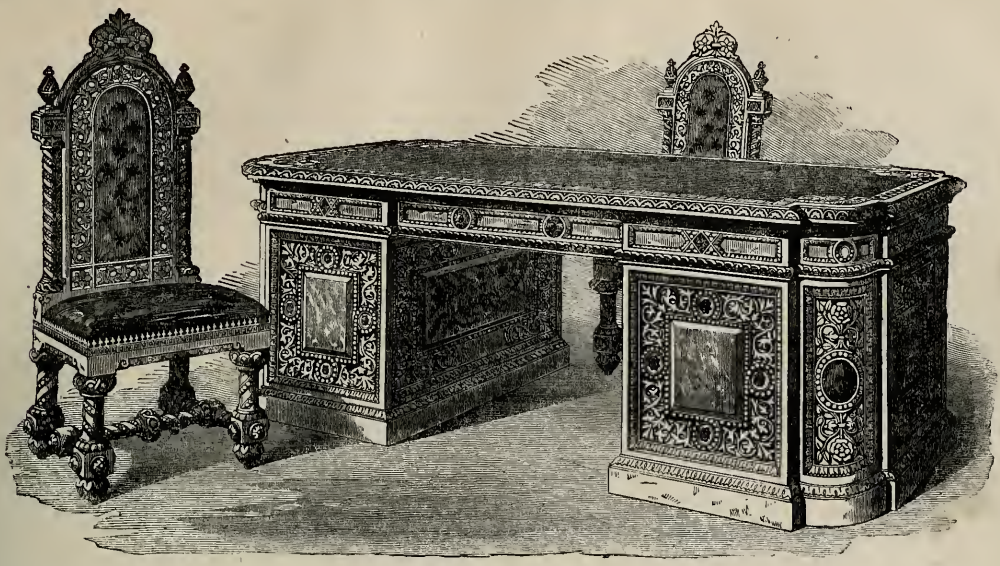
The subjoined table forcibly illustrates the variation in the death-rate under different circumstances:—

Cities and Towns.	Estimated Population in the middle of the year 1865.	Density. Persons to an Acre. 1865.	Annual Rate of Mortality. Deaths to 1,000 Persons living. 1865.
Liverpool (Borough) . .	476,368	94	36
Glasgow (City) . . .	423,723	84	33
Manchester (City) . .	354,930	79	33
Birmingham (Borough) .	327,842	42	25
Edinburgh (City) . . .	174,180	39	28
London (Registration Div.)	3,015,494	39	24
Bristol (City)	161,809	35	24
Dublin (City and Suburbs)	317,666	33	26
Hull (Borough). . . .	103,747	29	27
Salford (Borough). . .	110,833	21	29
Leeds (Borough) . . .	224,025	10	31
Total of 11 Cities, &c.	5,586,870	38	27

We have arranged the towns in the order of the density of their populations, because it may be taken as a general rule that, all other things being equal, the mortality of a town will bear a constant relation to its density rate. Thus, in Liverpool, Manchester, and Glasgow, where the mortality is so excessive, the people are packed nearly twice as closely as in the other towns. Where there is any discrepancy in this respect, it will be found almost invariably to admit of explanation. For instance, the population of the borough of Leeds is distributed over a proportionately larger area than any of the other towns, and yet its death-rate is nearly as high as the most unhealthy of them. The mass of the people are located on a comparatively small portion of the area, as is evident from the fact that in the district of Leeds (which is included in the borough) there were as many as 56 persons per acre in 1861, whilst in the remaining portion of the borough there were only two persons to an acre.

The extent to which an adequate water supply and improved sanitary arrangements are capable of removing the evils which make dense town districts so fatal, will be discussed in subsequent articles.

By way of a moral, to give additional significance to our first discourse on this subject, let us add that the deaths in 30 of the largest town districts during the ten years, 1851-60, are stated by the Registrar-General to have numbered 711,944—or at the average annual rate of 28 deaths to every 1,000 persons living in those towns. If they had experienced the same rate of mortality as prevailed in 63 of the healthiest districts of England there would have happened only 384,590 deaths; consequently, there was *an excess in the ten years of* 327,354 *deaths*, which may be justly ascribed to the unfavourable sanitary conditions in which the dwellers in towns live and die!



LIBRARY TABLE AND CHAIRS.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

LIBRARY TABLE AND CHAIRS.

The manner in which recent English and French industrial expositions have assisted in promoting the progress of our national art industries, is well exemplified by the great improvement, as regards taste and design, which characterises much of the better class of furniture at the present day. The subjoined illustration, representing a library table and chairs, affords a good proof of this. In the table, the mass of ornament with which it is covered is judiciously distributed over the surface, without becoming too prominent, or interfering with the general design of the article. Utility is not sacrificed to ornament, but the latter occupies its proper position.

Means of Education.

THE IMPERIAL POLYTECHNIC INSTITUTE OF VIENNA.

It is important that every publicity be given to the measures adopted in foreign countries for providing the means of technical education to the industrial classes. In the rivalry and competition among nations that now exists, greatly stimulated by Industrial Exhibitions, there is reason to fear that the British artisan will find himself outstripped in the race, unless prompt and energetic measures are taken to provide him with the means of obtaining scientific education on a liberal scale. The Polytechnic Institute of Vienna was established by an Imperial decree on the 17th of October last, and we think that the publication of the programme of its organisation will be useful in showing a comprehensive scheme of scientific and technical education on a par with the wants and resources of the present time. We do not anticipate that our Government will emulate that of Austria, in establishing a Polytechnic Institute. If ever such an educational establishment be founded, it will, doubtless, be through private munificence, or the co-operation of those to whom it has become indispensable.

The duty of providing the rising generation with scientific education, at the lowest possible cost to the recipient, ought not to be neglected, if it be desirable for England to maintain her supremacy in the industrial arts.

The aim of the Imperial Polytechnic Institute is to provide theoretical and practical instruction, as complete as possible, for those who are intended for an industrial career.

The course of instruction is subdivided into four groups of subjects, or special schools, viz.:—

1. Hydraulic Architecture, Roads and Bridges.—*1st Division.* Mathematics, Descriptive Geometry, Technical Physics, Mechanics, Theory of Machines, Knowledge of Materials.—*2nd Division.* Practical Geometry and Geodesy, Mechanics of Construction, Architecture (properly so called), Hydraulic Architecture, and Roads and Bridges.

2. Architecture.—*1st Division.* Mathematics, Descriptive Geometry, Technical Physics, Mechanics, Theory of Machines, Knowledge of Materials.—*2nd Division.* Practical Geometry, Mechanism of Construction, Architecture (properly so called), Hydraulic Architecture, and Roads and Bridges, History of Architecture.

3. Construction of Machines.—*1st Division.* Mathematics, Descriptive Geometry, Technical Physics, Mechanics, Practical Geometry.—*2nd Division.* General Architecture, Theory of Machines, Construction of Machines, Mechanical Technology.

4. Technical Chemistry.—Mineralogy, Botany, Zoology, General Physics, Technical Physics, General Theory of Machines, Theoretical Chemistry, Technological Chemistry, Knowledge of Commercial Products.

Auxiliary Subjects.—These include Universal History, History of the Austrian Empire, National Economy and Statistics, Commercial and Maritime Law, Legislation and Administration, History of Architecture, History of the Inductive Sciences, History of German Literature, Æsthetics, and Responsibility. Drawing and Modelling, Stenography, and the French, English, and Italian Languages are also made the subjects of special instruction.

The lectures are either *annual*, or from the 1st of October to the end of February; or from the 1st of March to the end of July. The programmes are permanent, and can only be modified by authority of the minister.

The professors of botany, geology, chemical technology and mechanics, agriculture and forest culture, topography, the construction of machines, and of objects relating to practical architecture, will take their pupils on excursions suitable for facilitating the understanding of their theoretical instruction. The professor of practical geometry will execute with his pupils a geodesical operation of some importance during the summer session.

ELECTRIC COMMUNICATION IN RAILWAY TRAINS.

M. ACHARD'S SYSTEM.

Here, as in the Achard brake, it is electricity which intervenes at the proper moment to make use of the force of the rotation of the wheels, and to dispose of it so as not to exert on the pressure-bands a force powerful enough to determine an instant slackening of speed, but to pull the wire of one or more powerful bells along the train. An excentric is fixed on one of the axle-trees of the luggage van; a lever, No. 1, the axis of which is adapted to the framework of the van, has one extremity resting on the excentric, and while the wheel revolves, receives an alternate motion. At its other extremity the lever carries a catch, playing on a ratchet-wheel, which turns a certain number of teeth for every revolution of the excentric at the other end of the lever. The ratchet-wheel carries four arms fixed beside it, which play on the end of another lever, No. 2, the centre of which is also adapted to the framework of the van, while the other end is in communication with the hammer of the bells. The first bell outside the van is of large dimensions, and is to call the attention of the driver or stoker; the second, inside the van, is to call the guard of the train. Once set ringing, the apparatus would never stop without the agency of the electric current. In order to do this, the lever No. 1 carries at its extremity near the catch two flat bars of iron, guided in their alternate vertical movement by two guides. These two bars play against the extremities of an electro-magnet with four poles. As soon as the magnet is animated by a current of electricity, it lays hold of the flat bars of iron with a force of 225 lb., and the lever, no longer touching the excentric, remains stationary; the ringing of course ceases also. To set them at work again, it suffices to interrupt the electric circuit. One great advantage of these dispositions is that all the derangements capable of interrupting the current—such as breaking of coupling links, running off the rails, fire, &c.—as soon, at least, as they affect the conductors, set the bells ringing continually till the train stops completely. Intended at first only for the officials of the train, this system of communication can, without any practical difficulty, be extended to the passengers. It is a simple question of the adaptation of interrupters to every carriage; and the time has come, as we see by the Ministerial circular, for definitely adopting the only efficacious means of preventing accidents which have so seriously occupied public attention.

THE CHOLERA AND NITROUS ACID.

We extract the following passage from a letter from M. de Luna, a celebrated Spanish chemist, dated 25th November last:—"Allow me to present you with a new work that I have just published on the subject of the *cholera morbus*, which at Madrid has so cruelly visited us. You will find compiled in it all the observations, collected by me with the greatest care, on the powerful efficacy, as disinfecting agent, of nitrous or hypoazotic acid, disengaged by the action of nitric acid upon a copper coin—an acid which is, in reality, nothing but a depôt or magazine of ozone. Wherever, by producing these penetrating vapours, the atmosphere of the rooms was strongly ozonised at the hour of rising and at bedtime, the cholera was escaped, or at least the intoxication produced by the atmospheric miasma was confined to symptoms of little gravity. The inhalation of ozonised air by nitrous acid determined, in every case where it was applied, a perfect reaction; the inhalation of oxygen ozonised by the same vapours saved many patients in the algide stage. These assiduous observations that I have made also gave evidence of the actual relation between the diminution of the quantity of ozone in the air and the intensity of the cholera, on the condition, however, that the wind blew from the south and south-west, and that the temperature did not exceed 59° Fahrenheit." What is most novel and important in this communication is the fact that nitrous acid is an abundant and energetic source of ozone or oxygen in a nascent state, always ready to oxidise animal matters, and to destroy them by oxidation. Nitrous acid has, in effect, the characteristic odour of ozone or electrised oxygen, and strongly turns brown the ozonometric paper of M. James. Our readers will notice the singular and remarkable coincidence of the employment of nitrous acid at Madrid as a preservative against the cholera, and at Paris as destroyer of the choleraic miasma in disinfecting the wards of hospitals.

Working Men's Clubs.

BY THE REV. H. SOLLY.

The task of pointing out clubs that have been successful and others that have failed, with a glance at the causes of either result, is an important duty in giving any sketch of the history of this movement, but by no means an easy one; for, with a few exceptions, the fate of each club has been a chequered one, as we might expect in the early stages of all such undertakings. Frequent mistakes are sure to be made, and very rare must be the cases in which have been found a combination of all the elements requisite to ensure success. Several large and very well-managed clubs have suffered from adverse influences or unavoidable hindrances during their career, which have retarded for a time their prosperity, or even brought them very low. Yet, both these and much smaller institutions, which have never attained any great prosperity or suffered serious check, have been effecting a large amount of good, not merely by their direct benefit to individual members, but also by the leavening influence they have been gradually exerting on the working population in the neighbourhood. The following may be mentioned as clubs that have been in highly successful operation for two or three years, and which, to the best of my knowledge, have never experienced any check in their career or diminution of their prosperity. There may be others equally entitled to such mention, but if so they have not acquainted me with their history. Those clubs that I can testify to from personal knowledge are Camden Town, Duck Lane (Westminster), Holloway, Stoke Newington, Leeds, Rotherham, Newcastle, South Shields, Sunderland, Buersill, Preston, Wednesbury, and Guildford. The Clubs at Bristol, Wolverhampton, Shoreditch (London), Stoke Newington, Essex Road (Islington), Portsmouth, Devonport, and Blandford, have also done well, and we have recently heard that one at Heywood, in Lancashire, has been uniformly very successful.

The club at Bolton had been one of the best and most flourishing, until it began to suffer from the want of a hall large enough to hold the members at their weekly entertainments. They are taking steps, however, to remedy this defect, by raising money to build a hall adjoining their spacious and capital club-house, having plenty of ground for the purpose.

The Workmen's Hall at Notting Hill, established by Mrs. Bayley, and mentioned in my previous paper as one of the first and best, suffered a serious check to its career about three years ago, partly owing to insufficient accommodation for the numerous members who flocked to it, and partly from a dispute in reference to smoking. A secession took place in consequence, and for a short time the undertaking, which had wrought incalculable blessings to the neighbourhood, threatened to prove a failure. Energetic and judicious measures, however, speedily re-established a prosperous state of things. The club, as such, was dissolved by common consent of the members, and the building was thrown open to the public without any charge, the current expenses being defrayed by the sale of refreshments, and by letting the smaller rooms, as well as the lecture hall, to various provident, temperance, and other societies, of which the members have formed several, all very flourishing, since the hall was originally opened. These societies form a bond of union amongst the frequenters of the club, besides doing great good in various ways. A religious service is held there one evening in the week, as well as on Sundays. Since the new plan has been adopted the place has been self-supporting, which it used not to be under the old system.

In January, 1865, forms to be filled up with various interesting particulars were sent to all the clubs whose existence was then known at the central office, amounting to about 180, and returns were received from 77, the number of ordinary members in which amounted to 18,327: 37 of these clubs, at the time of making their returns, were self-supporting; 32 are returned as having lectures; 29 as having classes; 23 as having provident societies of some description connected with them; only one mentions a Bible-class; 17 state that friendly or trade societies rent a room at the club for their ordinary meetings.

The number of clubs now on our register (January, 1866) is 302. The number of those that have failed, as far as I am aware, during the last three years is 19, which, added to those now in existence, give 321 formed since 1858, only two of that number having been formed previous to 1860; this gives only about 6 per cent. of failures, although a considerable number, unquestionably, are not at present in a very flourishing condition. It may, however, be fairly calculated—both from the above returns, and from those that are now coming in, in reply to questions sent out at the beginning of this year, as well as from other sources of information—that an average of 250 members to each club would be about the mark, giving a total of 75,000, every one of whom, probably, is making at least three people, young or old, more or less the better and happier for his belonging to the club instead of the public-house, giving a total of about 225,000 benefited by this important movement.

Now with regard to the causes of success or failure, I had better, perhaps, first recur to some of the general principles and plans on which Clubs should be founded and worked.

What, then, do men naturally desire in any place or society to which they turn for rest and companionship after their day's work? Clearly, *to know that they are welcome.* This they feel sure of at a public-house. If they do not feel it at a club they probably will not go there very often. I believe this to have been one of the greatest difficulties most clubs have had to contend with. For who is the proper person to give that welcome? Unquestionably the steward or housekeeper in the first instance. And wherever this functionary is of a cheerful, genial disposition, the effect in promoting the prosperity of the club has been very marked. But owing to the unavoidable exigencies of the case, the first duty of the steward, upon a person's entering the club, may be to ask him to show his ticket of membership, which makes the greater tact and cordiality on his part needful to give the new-comer, nevertheless, a conviction that he is heartily welcome.

Then, again, if the steward has to be where he can see the members' tickets as they pass in—*i.e.*, near the door—the newly-made member gets little further encouragement from him to feel at home in the club. But under any circumstances, it is of great importance that one or more members of the committee should take it in turns to attend every evening at the club, to welcome those members who have so recently joined that they have not had time to make acquaintances there, or who have no companions to introduce them, and give them a feeling of sociability and "good fellowship" in it.

And, lastly, every member of the club who has been connected with it long enough to feel at home in it, should exert himself to make everybody else feel the same, by manifesting a kindly, sociable disposition, especially towards those who have more recently joined. A friendly greeting when a man enters, and a pleasant smile or shake of the hand, making room for him at the fireside, handing him a newspaper, or inviting him to play a game of draughts, like many other seeming trifles, have a great influence for good—promoting not merely the success of the club, but something more important still, a true brotherly spirit among human souls.

What is the next thing men want after their day's work? Amusement, excitement of some kind or other, a complete change from the monotonous toil in which they have been engaged. This also they get, in one way or another, at a public-house, and it is indispensably necessary they should find it at the club. It is said in the letter to Lord Lyttelton* that this is the department in which the help of gentlemen may be so useful. The members of the committee must, indeed, devote themselves specially to this work of making the club attractive, but it is much larger than they can generally cope with, unless they get other persons to help them. In the Club, it is to be hoped the members will always exclude beer-drinking from the list of their amusements and excitements, but its place must be supplied by something else than merely tea and coffee or ginger-beer. Music and singing, recitations, a discussion class, concert, or other entertainment, are just what is wanted in addition to the ordinary games. But these cannot be provided every night in the week, nor would it be a healthy state of things for any club, night after night, to be dependent on them. Promoters and managers of clubs have, perhaps, too much forgotten that the main stay of a club—its backbone—should be pleasant sociable companionship. The best room in the house should be devoted to talking (and smoking, if it be desired), not called, as I have too often seen it, "*the reading room.*" Five men want to chat, for one that wants to read. But, in order to make men feel as much refreshed and amused there as they do in the tap-room, some members or friends of the club should take care to introduce a little entertaining conversation whenever there is an opportunity, and not trust to its coming, at first, spontaneously, as it does under the influence of beer and "*good*" fellowship at "the public." In clubs that have been fortunate in getting a large number of pleasant, sociable fellows together, who all know one another, or soon become acquainted, little more, in general, will be requisite; but where that is not the case, and occasionally even where it is, a gentleman who, in a thoroughly unpresuming manner, with a kindly heart, drops in as a *guest*, not as an overlooker, can often set the talk a-going in a very pleasant and natural way. Perhaps he takes up a newspaper, and having read a paragraph, mentions some anecdote, or personal adventure of his own, bearing upon it, inviting his neighbour to do the same. Or he brings a map, engraving, or diagram, to illustrate events referred to in the newspapers. Another week he may bring a microscope, or stereoscopes, and in one corner of the room, so that nobody is obliged to come and look unless they like, he entertains and converses with those who have not found amusement elsewhere. One evening, somebody else brings the skeleton of a bird, or of the human hand, and engages those who care to join in an interesting palaver on the structure and uses thereof. Another night, a bullock's eye may be dissected, and a highly amusing evening will be the result, decidedly more popular and attractive, as well as more promotive of the main object of the club—viz., "good fellowship"—than any amount of mere lecturing. Then, some other friend looks in now and then, and plays a game of draughts, or teaches a few members the mysteries of chess. While on some similar occasion, a few extracts from the "Summer Vacation" rambles of our enterprising young barristers and doctors will serve to make all who have joined in listening or asking questions, feel that they have spent a far jollier evening than if they had been fuddling and singing at the "Magpie and Stump," over the way.

Our limits forbid further illustrations, at present, of the various ways in which the committee and any educated men may help to make Working Men's Clubs attractive. The above, however, is quite sufficient to suggest a good deal more. But I beg to state, most explicitly, that all this help is recommended and supposed to be offered *only as supplementary* to what the members may do in that way themselves—never being intruded, but always given in a thoroughly genial, unassuming fashion; especially, also, with a view to stimulate the members to do the same sort of thing themselves, each according to his ability. Where aid is given in this way towards making a club-room attractive and sociable, I know, by long experience, that, from the Land's End to John o'Groat's, it will be right heartily welcomed by working men of every trade, section, and age, and with an amount of gratitude and respect proportioned to the frank and brotherly spirit in which it is offered.

* Referred to in last number.

Our Steam Marine.—There are now twenty-three steam packet companies in this country, who own about 370 steamers, the tonnage of which is 560,000, the horse power 110,000, and the value between £30,000,000 and £40,000,000 sterling. 164 of these ships are connected with Liverpool, 94 with Southampton, 40 with Hull, 35 with London, 16 with Glasgow, and 15 with Hartlepool; 200 of these steamers trade with the eastern, and 170 with the western hemisphere. Upwards of 80 of the largest of the latter trade exclusively with the United States. The whole of these steamers run about 10,000,000 miles, and consume 2,000,000 tons of coals in the course of a year, and they give employment to 30,000 seafaring men. The same number of sailing ships would not run one quarter the number of miles in a year. The above ships are exclusive of about 100 steamers that run to and from England and the Continent by the southern ports in the English Channel. The whole of this vast steamship power of the country has been created within the last thirty years.

Visits to the Sick.

I.—THE LONDON FEVER HOSPITAL.

It is urged against the special fever hospitals and fever wards that the concentration of poison increases the mortality amongst the patients, and considerably augments the danger to the attendants. The officials belonging to the Institution in the Liverpool Road, Islington, deny both statements, and, by comparative statistics, seek to prove that the best way to deal with this malady is in an hospital specially devoted to the purpose, and that it is far more dangerous to treat such patients in the wards of a general hospital. They say that during the first six months of 1862 1,107 cases of true typhus were under treatment at the Fever Hospital, of whom 232 died, or 20·95 per cent. In the same period 343 cases were attended to in six of the general hospitals of the metropolis, of whom 80 died, or 23·32 per cent. In the Liverpool Road Asylum the disease communicated itself to 27 persons, of whom 8 died; or for every 40 patients admitted one person took it, and for every 135 who came in one died; whereas, of 272 cases taken in by the "generals," 71 persons caught the disorder, and 21 died. It is, at all events, quite clear that a very hazardous duty has to be performed by those who risk waiting upon the fever-stricken; and whether the hospital at Islington be founded on right principles or not, it is particularly deserving of consideration at the present time, when this disease has such a fatal hold upon our population, caused, as it undoubtedly is, in the vast majority of instances, by the vile dwellings in which so many of our industrial population have to reside.

In this atmosphere of disease and death it is not very likely that the secretary is often asked for permission to view the wards. To a person who has been in the habit of inspecting other charitable institutions having a kindred object, the most striking peculiarity about this one is the utter desolation of the scene. About most others friends gather, and are at all times most anxious for the privilege of seeing their relatives or friends; but in such a tainted atmosphere as this it would be manifestly unwise—nay, criminal—to permit many visitors to enter. It is not well to venture upon too close an intimacy with the grim tyrant "Typhus," or his equally despotic ally, "Scarlet." Most persons feel a shock when they enter the long wards of the ordinary hospitals, but it requires a very steady nerve indeed to face the silent enemy who lurks around the beds of a fever ward. All honour to those who undertake the painful duty of ministering and waiting upon the patients!

The secretary, anxious that you should not face unknown danger, says, "You are not afraid?" Perhaps the confident "Oh! no," might subsequently be translated "Oh! yes." When the doctor opens the door of the typhus ward there is a very strong inclination to remain in the corridors and see through the glass what is the spectacle presented within. At the very moment we enter, the nurse comes forward from a centre bed, and quietly tells the doctor something. They both approach the patient, and in a short time you know that Typhus is holding a formal interview with King Death.

The general appearance of the ward was very similar to that of most large institutions; but that which struck a very chill upon the soul was the perfect stillness which prevailed. It is seldom that in the day-time a visitor will find thirty or forty patients lying as in the solemn quietude of the grave—not a movement—not a sound. There were beds down the wall, around the walls, and in the centre of the chamber, each bed occupied; but yet each of those sufferers lay as completely still as if the spirit had already passed into the unseen. Had the ward been a vault, each bed a coffin, each man a corpse, a more absolute grave-like silence could not have prevailed. I do not imagine that the restlessness of fever always precurses this dreadful calm, but such was the character of the scene when I visited it. Perfectly ventilated as the ward was, it nevertheless seemed a positively delicious sensation when the last still form had been passed, the door fairly closed, and I stood in the corridor, feeling the garden breeze. It is of the very first importance that a perfect ventilation should be preserved, or the place would become a very charnel-house. It is just to the officials to say that the medical officer of the Privy Council speaks very highly of the arrangements in this respect. I ask how the nurses and doctors fare who constantly do duty in these pest wards? "Every nurse, and every medical man, has the fever," answers the doctor who accompanies me. We most of us know what brave things women will perform in the hours of sickness and death, but it requires a very resolute and calm spirit indeed which can deliberately face Typhus, with the certain knowledge that one day he will lay you on a bed of pain and suffering, or kill you. Family love and affection will override all fear; but to undergo the chances of infection for payment alone, to tend the very poorest fever patients for money, does seem somewhat strange; but thank God that there are women who will do so, and that with the greatest kindness. Let us hope that when Typhus or Scarlet seizes hold of these watchers, it is not many aches or pains he inflicts on the good souls; and that, when the poisoned arrow brings death, they may obtain the reward of the merciful and just.

In 1863 there were eighty-three attendants, including laundry-women, and of these twenty-three caught typhus—viz., one assistant resident medical man, one matron, one engineer, who had been attached to the hospital for sixteen years, and eighteen nurses; an assistant medical officer and one dispenser took scarlet fever. Of these there died the engineer and four nurses from typhus, and one assistant medical man from scarlet. Notwithstanding this apparently heavy loss, the report defends the establishment against those who have denounced it as a "crime against humanity, and a disgrace to the age in which we live," and says that the objections which are raised against a fever hospital, thoroughly ventilated, are not justified by facts, and that a given number of typhus patients can be treated on the plan of isolation with equal advantage to themselves, and with far less danger to the attendants and the other patients, than in the wards of a general hospital. Some time since patients were admitted into the wards indiscriminately; all sorts of fever were huddled together in the same wards; but a much more sensible plan is now adopted, for we are told that—

Owing to the frequency with which patients contracted other diseases than those for which they were admitted, the plan has been adopted of isolating in separate wards the typhus and scarlatina patients from the other patients, and from one another. The result has been most satisfactory; instances are now extremely rare of patients contracting either typhus or scarlet fever. It is a remarkable fact that out of 365 patients admitted during 1862, with other diseases than contagious fever, not one contracted fever while in the hospital. The few instances in which typhus or scarlet fever was contracted by the patients during 1864, were mainly due to the great pressure occasionally interfering with the classification of the patients.

The only noticeable difference between the typhus ward and the "acute," was that in the latter some of the patients, by sitting up in bed, showed they were living, though still the same profound stillness reigned. In 1864 there were 3,610 patients admitted, being 911 in excess of any previous year. At the present time the demands upon the institution are more urgent than ever—fifteen to twenty-five cases a day—and the committee are, therefore, compelled to build a new wing. That this additional accommodation may be provided as speedily as possible, the building will most likely be of iron. Of these 3,610 patients, 3,175 were suffering from fever in the strict sense of the word. This is the grand enemy with which the hospital has to grapple, and it is a melancholy reflection that it is a fever which, under a different system, could be fairly driven from our midst. It is propagated, and perhaps generated, by overcrowding, and is the fearful penalty we have to pay for continuing the "plague spots" in our midst. It is the disease upon the prevalence of which the variations in the number of admissions to the hospital mainly depends. As Mr. Rawlinson, C.B., said at a meeting recently held, "These fever-ridden places actually cost the country more money than all the Queen's palaces." The epidemic which is now raging is confined to the poorest class of the population. A very large proportion of the patients admitted during the year had been out of employment, and in a very destitute condition, for a long time prior to the attack. The localities of the metropolis whence those came who had been laid hold of by this tyrant Typhus, were the poorest and most densely crowded. It is amidst poverty, filth, and squalor that he holds his court with despotic sway.

Very strict precautions—and absolutely necessary ones—are adopted to prevent the disease being carried from the hospital to the surrounding neighbourhood. For this purpose, all the linen of the establishment is washed in the house, and undergoes a thorough disinfecting. Some articles, which cannot well be washed, are baked in ovens erected for that use. Belonging to the hospital is a carriage for the conveyance of the patients who are to be admitted, and which, upon request, is sent to any part of London. This is specially serviceable in preventing street cabs being used in removing persons suffering from such contagious disorders. That cabs should be ever used in this way is most disgraceful, and ought to subject the parties so acting to punishment. A given number of patients brought in were thus classed:—215 domestic servants, or policemen, for whom admission fees were paid; 71 admitted free, and 3,324 by parish orders—of whom but a small per-centage was paid for. Many of the paying cases were medical men or nurses, or persons who had contracted the disease in other hospitals. It is to be expected that the expenses of such an institution are very heavy, and although the demands are ever increasing, and promptly met, it does not receive a corresponding support. As patients require stimulants, the cost of meat, milk, eggs, wines, spirits, and beer, is a very large item in the accounts, cod-liver oil being another. Attached to the hospital is a good-sized piece of ground, which I could not help thinking might be much more advantageously and pleasantly used. It is now a mere garden for vegetables, and the convalescents, when they have the opportunity of walking in it, are confined to dirty paths, with nothing more interesting to behold than cabbage-stumps or potato beds. This is no very cheerful scene for such sick folk. If it be necessary, on economic grounds, that it should be continued, I hope that the committee may soon be relieved, and be able to convert it into a lawn with flower-beds. How much more delightful to the patients would it be to stroll over a grass plat, than have to content themselves by looking on such a waste! As a rule, our sick establishments might be made much more cheerful than they are. While patients receive the very best of medical skill and nursing, little effort is made to make the wards other than dull, dreary, whitewashed rooms, with corridors still duller and darker, holding out no invitation to the convalescent to leave his sick chamber, even for a few minutes. There are some hospitals, however, where things are different, and one of these we will visit next week. The institution is blocked in on three sides by rows of houses. The visitor is assured, however, that no evil happens to them on account of their contiguity to such a mass of poison. Still, it must be quite as much a matter of convenience as taste to live very close to a fever hospital. In conclusion, I am happy to say that the poor patients here receive the most unremitting kindness and attention.

WHAT IS WEALTH?

Wealth is something more than gold,
More than luxury and ease—
Treasures never to be told
May be found apart from these.
Men who great possessions own
May be needy, none the less—
They are rich, and they alone,
Who have store of nobleness.

Palaces are dreary domes—
Fair demesnes, but deserts wild—
If there be not happy homes,
Gentle thoughts and manners mild.
Trust me, though his lot be small,
And he make but slight pretence,
He who lives at peace with all
Dwells in true magnificence.

If you'd prove of noble birth,
Oh, beware of judgments rash!
Scorn to measure human worth
By the sordid rule of cash.
Gold and silver may depart,
Proudest dynasties may fall;
He who has the truest heart,
Is the richest of us all.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

FEBRUARY 10, 1866.

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Mr. Bright's Chicago Letter.

THE greatest living expounder of the operations of Free Trade, and the chief surviving leader of that memorable movement, which established in England the political ascendancy of the principle—Mr. Bright, M.P.—has lately addressed a letter to a Chicago correspondent, which has received well merited publicity in this country. All that Mr. Bright speaks or writes, is expressed in massive, clear Saxon, which is matter both of admiration and study; and upon any subject with which he chooses to deal, he throws a light, so fresh and strong, that obscure points become vivid. This is true of his short but impressive Chicago letter, which is worth the attention of working men.

America cannot see its way to Free Trade: as for that, the working classes of England did not much appreciate it twenty years ago, and were either quiescent about it, or unfriendly to it. They thought more trade meant merely more work—and had not the ingenuity to understand how they could extract higher wages out of abundant work. Yet this has come about. In many counties of England, as Mr. Bright observes, wages have risen from 25 to 50 per cent., even among farm labourers, who, of all the working class, are the least capable of controlling their own condition.

Without Free Trade, even trades unions must have had but limited success. No great increase of wages can be obtained, until there exists considerable commercial wealth, which can only be created by great trade. Indeed, it is only after a period of comparatively good wages, that unionists themselves can accumulate the subsistence funds necessary for a strike. Free Trade is the lever by which they have risen in means at home. As Mr. Bright puts it—"The workman's safety and success depends upon the state of trade, and the greatness of the demand for labour." It is "perfect freedom of trade which creates the greatest demand for labour, and gives the highest value to the workman's skill and industry." No scheme of protection, no imposition of tariffs, no restrictions of whatever description, do more than benefit the few at the expense of the many. A few wealthy employers, or exclusive corporations, may make large profits by the monopoly they are enabled to wield; but trade is limited, the limit itself decreases trade by driving purchasers away, and the workman, whose skill is excluded, and for whose labour there is no demand, finally and chiefly suffers. Free Trade opens the world to the workman. All known lands become his field of enterprise, and every port the market of his produce.

Even Americans coming to England and returning to their own country, furnish themselves with clothing enough to last themselves for years. Thus protection of the manufacture of cloth in America, as Mr. Bright shows, limits the trade and sends the native American customer to England to buy that which could be, and ought to be, purchasable at his own door. American workmen, sharp as they are in most things, do not see this. They are generally in favour of protection for trade. No man will look all round a machine more sharply than an American; but he cannot look all round the market. This implies the habit of wide views. It takes a higher order of mind, it requires an enlarged thoughtfulness, to calculate the effect of a principle on general interests. The time will come when the policy of trades unions will be reconsidered in this light. It is perhaps yet too early to expect it. Freedom of trade implies freedom of labour—a subject as yet in its infancy. Precisely the same class of arguments which are used now in America, to restrict trade and protect it, are yet popular in England for the protection of labour. The same benefits will accrue to all classes of workmen—higher wages will be commanded, and thousands of workmen will rise to distinction who are now kept down by self-imposed restrictions, when there shall arise advocates of the freedom of labour, as able, as far-seeing, and as influential among workmen, as those who won freedom of trade among manufacturers.

Mr. Bright's great aphorism, which splendid experience has confirmed in England, is that "Free Trade always means great trade, and great trade always means a great demand for labour, and this always means and necessitates a high rate of wages." No intelligent workman who reflects upon this, and is aware of the proofs upon which this vast and important assertion rests, can be other than a partisan, by rational and unchangeable conviction, of the great principle of Free Trade.

The Birmingham Exhibition.

SINCE the publication of Mr. Everard's letter in No. 4 of the WORKING MAN, we have received several letters relative to the management of the Birmingham Exhibition. From these it is evident that considerable dissatisfaction exists among exhibitors, produced, it is asserted, by the treatment they have received at the hands of the committee. In the first place, the statement of Mr. Gillman, that exhibitors were led to believe that £1,000 would be expended in prizes, which was denied by Mr. Everard, has been confirmed by the production of a lithograph circular, signed by the Rev. Dr. Miller. This circular, soliciting contributions to the guarantee fund, contains the following passage:—"Our immediate object in this application is to solicit your name for our guarantee fund, which, for the necessary expenses and for prizes, must not be less than £3,000. The guarantee notes hitherto issued have been worded for prizes, and about £1,000 have been guaranteed *for that object.* All future guarantee notes will be for working expenses." The statement that £1,000 was guaranteed for prizes, is also confirmed by Mr. S. Wall Richards, member of the Guarantee Committee.

As to the surplus, no information can be gleaned from the imperfect statement issued by the committee, and which we have already published, inasmuch as it reported that £4,094 5s. was taken, while but a few items of expenditure have been given, amounting only to about £600. The committee will, no doubt, see the necessity of issuing an abstract of their accounts as early as possible, or, at all events, of satisfying the natural curiosity of the exhibitors as to the amount of the surplus. The sum actually expended for prizes, although said by Mr. Everard to be more (in *intrinsic* value) than given by "any working man's exhibition in England," is not stated. If, as has been asserted, £110 only was devoted to the purpose of rewarding the exhibitors, in the shape of prizes, while £291 10s. was voted to members of the committee, the dissatisfaction which evidently exists can scarcely be wondered at. The remark made by Mr. Everard, that the complaint as to articles having been stolen from the exhibition was "a libel upon the inhabitants of Birmingham," receives a striking comment, the names and addresses having been sent us of several exhibitors who complain of having suffered loss by their goods being stolen or destroyed, and who could obtain no satisfaction from the executive. There are several other apparently good grounds of complaint on the part of the exhibitors, who refer to the published reports of the committee's proceedings as evidence of general mismanagement.

On the other hand, however, the executive have, no doubt, had many difficulties to contend with, and they have done much which entitles them to the thanks of the working men of Birmingham. In undertakings of this character, where experience is wanting, and where men unite together for a common object, considerable forbearance should be exercised by all parties concerned; and in this case we shall be glad to hear that the committee are willing to meet the wishes of exhibitors, as far as may be consistent with their duty to the public.

What Governs the Rate of Wages?

BY ARTHUR HOUSTON, M.A.,

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THERE is no question presented by the condition of the working classes a satisfactory solution of which is more urgently required, than the wages question; and there is none, perhaps, about which a greater conflict of opinion exists. On the very threshold of the subject a most formidable difficulty awaits us. One section of those who speculate upon it maintain that the rate of wages is determined by causes over which neither the labourers themselves as a class, nor society at large, can exercise the smallest control; while a directly opposite view is taken by another section, who insist that the influences which govern the rate of wages can, to a very great extent, be modified in their action by legislation, by public opinion, by usage, and by combination, on the part either of employers or employed. It is quite evident that in the wages problem this is a fundamental question. Till it has been disposed of, we cannot with safety advance a step. If it be true that the labourer's remuneration is fixed by a rule which admits of no deviation, and resulting from causes altogether beyond the reach of human control, then the whole matter is at an end, and the labouring classes, and those who are anxious for their welfare, had better desist at once from fruitless attempts to effect their purpose by acting on the rate of wages, and direct their efforts to some less barren field of exertion.

Now, in order to decide this preliminary point, let us endeavour to exhibit the argument of those who take this view in the light in which they present it themselves. For this purpose, it will be convenient to refer our readers to an article that appeared in our first number, at page 11, under the title of "A Saturday Sermon," and which was extracted from the *New York Journal of Civilisation.* The object of the writer, apparently, was to dissuade the working classes from making any attempt to induce the Legislature of the United States to limit the hours of labour by law. To this end, he endeavours to prove that the conditions under which labour is hired are determined by influences entirely beyond the reach of legislative control. As his argument may be taken as a fair specimen of that employed by the school to which he belongs, we shall take it as the basis of our present investigation.

It will be seen, by turning to the article referred to, that the line of argument pursued by the writer is as follows:—The laws of political economy, like those of physics, are absolutely inflexible. There is no evading or resisting them. The value of every commodity is determined by demand and supply. Labour is a commodity; its value, therefore—or, in other words, the rate of wages and the conditions generally of the con-

THE WORKS OF THE THAMES IRON SHIP-BUILDING COMPANY.—(*See page* 82.)

tract between the workman and his employer—must obey this law. To endeavour, therefore, by legislative or other interference, to alter the rate of wages, or the conditions under which the labourer works, would be as vain as—in the words of the preacher of the "Saturday Sermon"—"to legislate against the attraction of gravitation or of cohesion, or to attempt to redistribute the oxygen and nitrogen of the atmosphere."

Our readers will perceive that the foundation upon which the whole of the above argument rests, is the inflexibility of the laws of political economy. Now, we deny that these so-called "laws," or the so-called laws of the physical sciences, or of any class of sciences whatever, *are* inflexible in the sense which the argument implies. The word "inflexible," throughout that argument, is used in the sense of "irresistible." It is represented that all opposition to the laws of political economy must inevitably fail. In fact, if any other meaning were attached to the word, the argument would fall to the ground. Now, we repeat, the so-called "laws" of political economy, and of all other sciences, are of a wholly different character from that here attributed to them. Instead of being inviolable, they are constantly broken. Take, for example, the law of gravitation, so often employed as an illustration of the inflexibility of economic laws. Is it irresistible? To be sure, it would be as silly to seek to overcome it by *legislation*, as it would have been for King Canute, had he been in earnest, to order the advancing tide to refrain from wetting his royal feet. But had his Danish majesty act his idle courtiers to throw up an embankment round his chair, he might have sat where he was, high and dry, despite of all the water in the German Ocean. You cannot, by kingly edict or Act of Parliament, prevent the tide washing over your feet or your fields, if they are on the sea-shore, and below high-water mark; but if you want to keep them dry, you have only to build a stout rampart, and the thing is done. So it is with any of these "inflexible" laws of nature—gravitation, cohesion, and the rest. Within certain limits they may, most of them, be successfully resisted, if only the proper means be taken for the purpose; in fact, every step in the progress of civilisation is little more than an additional triumph over these very laws, by which they are shorn of some of their power for evil, without being robbed of any of their power for good. To return to the law of gravitation. In obedience to it, objects have a tendency to fall to the ground; but do they, as a matter of fact, inevitably do so? Certainly not. This law is daily, hourly, momentarily transgressed by everything that has life, and by many things that have not. You cannot go up-stairs without breaking it; the minutest insect that flies sets it at defiance; the balloon in the air and the cork in the water actually *ascend* by virtue of the law itself. There is an end, therefore, of the alleged inflexibility—meaning thereby irresistibility—of this law; and there is scarcely a law of physical science of which precisely the same may not be said. In fact, "law" is about the most inappropriate and misleading term that could be applied to the thing which in such cases it is intended to designate. These things—gravitation, cohesion, and the rest—are not *laws*, but *forces*; forces which can be modified, controlled, or overcome, if only the proper means be taken to do so. If we correctly measure their strength, and oppose to them forces of equal or greater power, we can curb and subdue them. So it is, also, with the laws of political economy, and of the sciences which belong to the same class. Such laws are no more irresistible than those of mechanics, for example. They represent, like the latter, forces of a greater or less degree of strength, which will yield to a greater or less degree of resistance. Is practical proof of this assertion required? It is not far to seek. What are the laws regulating the conditions under which it is permitted to employ children, but instances of the effectiveness of legislation in modifying the natural results of economic laws? To take a more familiar illustration still: if the laws of political economy are of that rigidly inflexible character attributed to them, how comes it that one day in seven is strictly observed as a holiday in some countries, and not in others? Surely, if the influence of religion is enough to put a check on that general desire for gain which forms one of the most fundamental laws of the science, other influences may be able to do so in an equal or less degree. The truth is, those who, in the language of the preacher of the "Saturday Sermon," assert that "the laws of political economy are not less absolute than other laws"—such as those of physics—are guilty of a double mistake. For, not only is it not true, as we have seen, that the laws of physics are "absolute"—*i.e.*, independent of human control—but it is not true that the laws of political economy are in this sense as absolute as those of physics. The fact is, that many of the laws of political economy, so far from being independent of human control, are altogether of man's creating. The laws of physics are the offspring of Nature; but the laws of that branch of political economy which deals with the distribution of wealth, within which questions of wages fall, are, some in the whole, and some in part, the children of society. Thus, for example, the contract between landlord and tenant, which in these countries is regulated mainly by the spontaneous action of demand and supply, is regulated in Prussia by positive law, and elsewhere on the Continent by long-established custom.

The argument, therefore, against legislative or other interference with the rate of wages, founded on the alleged inflexibility—that is to say, irresistibility—of economic laws, entirely falls to the ground. These laws do not present an impassable barrier to such interference, but only a resisting surface, so to speak, which, within certain limits, will yield to pressure properly applied.

This impediment having been thus removed from our path, we are now in a much better position for attacking the wages problem. We now see that the laws of political economy are to be regarded merely as obstacles of a not insurmountable kind, which are to be accurately measured and allowed for, and that the probable efficacy of any proposed means of acting on wages, is to be estimated with due reference to them. Political economy does not take the wages question out of the hands of the labourers or their representatives; it merely draws attention to certain difficulties, which must be recognised and overcome before the question can receive a satisfactory solution in practice.

In a future paper we shall consider how far it is possible, and how far it is expedient, to exert the power of regulating wages which society has been thus shown to possess.

Inexhaustible Ivory.—New Siberia and the Isle of Lackon are, for the most part, only an agglomeration of sand, ice, and elephants' teeth. At every tempest the sea casts ashore fresh heaps of mammoths' tusks, and the inhabitants are able to drive a profitable trade in the fossil ivory thrown up by the waves. During summer, innumerable fishermens' barks direct their course to this isle of bones; and in winter immense caravans take the same route, all the convoys being drawn by dogs.

Art and Handicraft.

VI.—THE LOGIC OF INDUSTRIAL ART (*concluded*).*

FOLLOWING up the course of argument commenced in the last article, it is now necessary to the thorough apprehension of the question under consideration to enunciate, in as unmistakable a form as possible, the principles which it is desired should guide alike—the designer, the workman, and manufacturer, the buyer for the market, and, finally, the consumer, in producing and judging of works of industrial art.

As already stated, there are three points which demand consideration in designing, executing, and finally deciding upon the merits of such works:—

1. The use or purpose for which the object is made.
2. The material or materials of which it is made.
3. The means by which it is made.

As a matter of course, the last point affects the consumer much less than the other two, but it is of essential importance to the designer and the workman.

Taking the first point. The *utility* of an article of domestic use may appear to be totally independent of its ornamentation or decorative adjuncts; but it certainly is not of its form. When sound judgment is used in the selection of the form, the purpose for which the object is required will have primary consideration, and the exercise of this judgment constitutes that indefinite thing or sentiment usually called taste. The form, then, becomes an essential element in the beauty of the object, since it is subservient to the purpose for which the article or object is made, whilst the line of the form is as graceful, and as true in the relative proportion of the parts, as the end to be attained will permit. Take a drinking-cup, for example. Such a vessel could be made with simple reference only to its capacity to hold liquid and allow its contents to be drunk. Little or no attention need be paid to its external appearance, or even form, except that portion which would have to be carried to the lips, which would certainly require to be so shaped that the liquid could flow from the interior of the vessel into the mouth. It may so happen, however, and has indeed happened in many an instance, that so much attention was paid to the decorative character of the form, and that, too, in a mistaken imitation of some selected natural type, that this essential portion of a drinking-cup was so distorted, in order to render the vessel ornate in its structural lines, that the liquid contents could not be conveniently drunk, or that the form suggested the possibility of shedding as much liquid as would be imbibed in the operation of drinking.

As a matter of course, in such a case, the utility of the cup as a drinking vessel has been sacrificed to its appearance as an ornament; and however pretty its appearance may be, it is badly designed; and all the art-skill which may have been exercised upon it has been practically thrown away. Thus the conclusion arrived at on this point seems to be inevitable, and may be stated as a distinct proposition always to be kept in view in designing or executing any ornamental article of utility; and which, perhaps, it may not be presumptuous to call

Canon I.—The use or purpose for which an object is intended should be met in its form and structure, and no decorative adjuncts or ornaments be permitted to interfere with its utility, or be contradictory to the position such adjuncts or ornaments occupy, in relation to the whole.

The study of the material, and a proper consideration of its adaptability to the forms essential to the use of the object to be constructed of it, is the second point.

There are few more prevalent errors in the production of ornamental works in the present day, than those which arise out of the assumption that, because certain forms and decorations are well adapted to, and are appropriate in one material, they will be equally appropriate to, and look equally well in another material, probably of a totally different character. There can be no doubt that one of the great essentials of good designs in industrial art, is the adaptation of the *motif* or theme to the special natural characteristics of the material or materials, if varied, in which the design is to be realised. One of the great secrets of success of the artists, designers, and workmen of the Middle Ages was the intelligent, simple, common-sense adaptation of the forms they produced to the nature of the material in which they wrought, after a careful consideration of the perfect suitability of that material to the purpose they had in view. The great variety and excellence of the designs produced by them while simply ringing the changes on the same types, have been the constant theme of admiration, and a source of infinite pleasure to the antiquary, as of late years they have been a source of constant and varied instruction to the art-student. The rule holds good in its application to any other style of art, as well as to what is popularly termed "Gothic"—though not, perhaps, always to the same extent; nor is it always so easy of full application.

Surely it ought not to require any elaborate argument to show that forms well adapted for execution in wood, where the fibrous character of the material affords facilities for delicate and extensive undercutting and very high relief, are not equally fitted for stone or marble, where the material is granular and friable. Nor is it very wonderful if forms executed in wood, stone, or marble, with marked success in their adaptation to each, are not equally well adapted to metal, be it brass, bronze, or iron. Again, forms which are suited to look well in brass and bronze, are the very reverse in iron; whilst even in this latter metal itself, the difference between the facilities for producing certain forms of easy adaptation to wrought-iron, as compared with imitations of the same forms or details in cast-iron, must be evident to every one, apart from the fact that the economy, when it does exist, is only at the expense of usefulness and endurance; since cast-iron is no substitute in the matter of wear, tear, and resistance, where ornamental forms are really adapted for production in wrought-iron.

It would be impossible to select a better example of the importance of studying the peculiarities of material in its adaptation to special design, than the great stride which has been made during the past twelve or fifteen years in the ornamentation of glass, and the adaptation of ornamental forms to the peculiar nature of this substance. The crystalline, translucent, and brittle character of glass seems to indicate at once the true nature of its structural use, as in the case of fountains, candelabra, and blindred objects; but a frightful amount of bad design has been got into this material through an obstinate determination to ignore its very constitution, and make it do duty in forms only adapted to materials of a totally different character. All ornamentation in or on forms of glass, should arise out of skilful advantage being taken of the qualities above named for the production of variety in colour and decorative detail—primarily, in using the effects of light in transition through the material to obtain prismatic results by cutting in facets, and secondarily, in the partial stoppage of light in transition for the production of ornamental effects in dead glass by engraving; and this altogether apart from the question of coloured glass in any form—simple or in construction.

It is astonishing to what an extent the violations and contradictions of the true character of the material is still carried in important structural objects in glass. Instead of honest and common-sense cuttings in facets, which afford an infinite variation of geometric arrangement, acanthus leaves, Greek scrolls, and Roman pateræ, are "pressed" in the material, and used as decorative adjuncts. It never appears to enter the minds of the people who design these things that the very quality which gives value to these forms in stone and marble—opacity, by which the forms fulfil their true use, and look as the old artists intended them to look under the influence of direct light, producing, of course, direct shadow—is utterly lost as the light passes through them, and is refracted as well as reflected, until the very form itself is comparatively lost.

This is given as an extreme illustration; but it is, nevertheless, so true, that the conclusion is forced upon us in the form of

Canon II.—The material of which any object is made, should, in combination with the purpose for which the object is made, be considered in all its bearings, and the forms and ornamental details adapted to the most economical and enduring use of that material, in relation to its external appearance and internal structure.

The third point which ought to be considered, alike in designing as in judging of any ornamental work when executed, is the mode of manufacture—whether by hand-labour, or by special mechanical means.

This opens a very wide field for consideration, especially when we take into account the great industries comprised in the various classes of textile fabrics; for in nothing has ornamental design in England failed so signally, as in the intelligent consideration of the special conditions under which ornamental forms and decorations can be produced in various materials by mechanical means. Instead of modern progress in mechanical science having been made the means, as it might have been, for the promotion of progress and the development of originality of conception in ornamental design, it has, in nine cases out of ten, tended rather to obstruction. So much has this been the case, that many earnest and thoughtful advocates of a more catholic diffusion of art, have assumed that the introduction of novel and economical mechanical methods of production, has been inimical to true art-progress, and as such to be decried and avoided, rather than studied and used; the fact being overlooked that the hammer, chisel, chasing-tool, or graver, are all so many mechanical means, as aids, to an end—that end being intelligently kept in view by the artist workman who uses them.

If art works were to be confined, as in a bygone age, to the exclusive few, this question would be scarcely worth raising; but as in these modern times art is rapidly taking its position as a necessity in our intercourse with other peoples, and, to meet the exigencies of a foreign as well as a home demand, the instrumentality of mechanical means is required in order that the refining influences of art may be brought to bear in a more rapid, economical, and successful manner—hence we are bound to consider the best use and most extended application of these means to a given end. It is true that modern mechanical means and scientific appliances have been chiefly made use of for the purpose of producing cheap imitations of objects of art, in a far-off rivalry of productions which were the result of a totally different method. This, however, is no reason why our designers and skilled artisans should not study these new means for the purpose of producing new results, or that our manufacturers should be content to follow slavishly in the conventional grooves of bygone types. It is maintained, then, that the new means furnished by modern science and the extraordinary development of mechanical skill, which is one of the great characteristics of this age, should be, and might be, brought to bear upon the legitimate and common-sense end of producing novelty and originality, in combination with utility and beauty. Wherever this has been done—and happily it has been achieved in many instances, when designers and manufacturers have had the courage and intelligence to study the scientific and mechanical means around them thoroughly, and not allow themselves to be so hopelessly and almost helplessly wedded to a beaten track—the results which have followed have been at once legitimate and satisfactory. Thus, instead of throwing away the means at our disposal in attempts after the complicated in form and colour, these mechanical aids, when legitimately studied and used, should always tend to the production of the simple and pure. If this were done, an intelligence and precision unknown in past times, except in very rare instances, where great artistic skill has been brought to bear in the execution of some special work, would be the result in the great majority of instances in which ornamental details and objects are wrought out by purely mechanical means.

This leads to the statement of

Canon III.—The scientific and mechanical conditions under which any object of ornamental art can be produced should be carefully studied and considered in relation to the results obtained, or obtainable, alike in an artistic and economic point of view.

The task undertaken at the outset of these essays on "Art and Handicraft" is accomplished so far as this introductory series is concerned. The question of practical illustrations of the principles laid down, it is hoped, with sufficient

* The leading portions of this article were written, and printed for circulation among the personal friends of the writer, some two or three years ago.

clearness to enable any intelligent person to apply them for himself, must be taken up at some future and more convenient period. In the meantime it is hoped that all really interested in the matter will see that one great truth underlies this question of ornamental art, as applied to the utilities of life. It is this: That "He who has done all things well" has adapted "all things" to a use, and that, to the thoughtful mind, the beautiful and the useful are the most characteristic qualities of all things in nature, and that man, in seeking to render the useful decorative and ornamental, is simply following the example of his Divine Creator. George Wallis.

Where Some of Us Buy the Sunday's Dinner.

The most thriving among us, especially those who enjoy the great benefit of receiving their wages on Friday instead of Saturday, buy their legs of mutton, their vegetables, the apples for the pudding, and the titbit of cheese which comes after, in a quiet and regular way at the ordinary shops. It would not be worth while to attempt to describe such a regular proceeding as marketing in that manner. The wife has got it all over by the time the husband gets home on Saturday evening; the house is clean and tidy; and she is sitting down, making herself comfortable over a job of sock-mending for the little ones, or otherwise preparing for a neat, quiet, orderly Sunday. But many men do not get their wages till Saturday night; and many more, when they do get them, find them so small—especially after the week's "tick" of the shop has been settled—that they and their wives are obliged to look out for a market where things are at any rate cheap, if they do not deserve the remainder of the proverbial phrase, "and nasty."

There are many "poor men's markets," which are familiar enough to the working Londoner, but of which the classes above them have very little knowledge. Even the "amateur casual" might find something to note which would be almost as strange to refined gentility as his picture of the Lambeth ward. I should like to take some well-to-do people that I know of to the markets where some of my mates buy their Sunday dinners, the woollen jackets and boots for the little ones, and the bits of clean cap-border which the wives put on out of respect for the Sabbath. I would advise them to keep their eyes open, though if they could sometimes shut their ears they would be all the better for it.

Which shall we visit first—the New Cut, Somers Town, Clare Market, Leather Lane, or Whitecross Street? They are types of others of the kind to be found at Westminster, Whitechapel, Shoreditch, and other places. Some of the Saturday night markets are held in main thoroughfares, but, as a rule, the choicest specimens are in comparatively bye streets, such as Chapel Street, Somers Town; Leather Lane, or Whitecross Street. The last-named will probably suffice to convey to my highly respectable friends a general notion of the aspect of a "poor man's market."

Six hundred years ago a great white cross stood at the end of the lane which led into the road known as Barbican, so named from the fortified outpost of the City walls, which commanded the access across the fields to the old embattled city. The cross and all its associations disappeared centuries since, with the daisies in the fields. In our time Whitecross Street is a main artery of one of the poorest and most squalid districts of London. Miserable, hopeless poverty seems inseparable from the associations of the place. The huge, blank walls of the debtors' prison frown upon it—the prison where the ruined, despairing gamester, the wretched insolvent, the truculent swindler, sighed or recklessly laughed out the remainder of their miserable lives. At the small shops, or the squalid stalls in the streets, the tattered prison-runners, the hapless wives and children of the debtors, bargained for the cheap morsels which sustained the physical existence of those within the walls. There are few prisoners now-a-days; but walk down Whitecross Street on a Saturday night, and you will see pinched faces, anxious eyes, thinly-clad forms, the signs and seals of extreme poverty, which may tell you that there are bonds and gaolers outside prison walls, just as the boisterous laughter, the coarse jollity, the unabashed ruffianism of others, too surely show how little shame exists where shame is most needed. But there are other and pleasanter sights to be seen. Cheerful couples are bargaining for fat shoulders of mutton, cheapening "block ornaments"—as the odds and ends which lie on the block in front of the butchers' shops are called—speculating on the probabilities of the pair of side-spring boots which have been so neatly mended fitting little Johnny, who evidently wants them badly enough; and altogether laying out their money to good advantage, not without an eye to a market penny, which will be invested in a horse and cart or a monkey on a stick for the baby.

A strange sight it is, as we look down that long vista lined with glaring shops, and the inner line of stalls and costermongers' trucks and barrows, each with its own flaring, smoky lamp, giving out a flickering tongue of flame, and an almost insufferable odour of naphtha. At the butchers' and potato-dealers', jets of gas half a yard long threaten the heads of the passers-by; and at some of the shops, where the front stall is the property of the shop-keeper (who does not feel inclined to allow the irregular dealers who do not pay rent and taxes to have things all their own way), a temporary gas-pipe spans the footpath, and bends down over the stalls. Odours of fish, closely-packed vegetables, gas, naphtha, butchers' offal, and the grains from the neighbouring brewery, pervade the atmosphere, and though evidently agreeable enough to the frequenters of the market, are somewhat oppressive to the chance visitor.

It is hard work making one's way through the narrow, crowded street, made narrower still by the numerous stalls. One of the first ideas which strikes a stranger, is that the London poor must be desperately fond of vegetables. The barrows are heaped with bunches of greens and Savoy cabbages; enormous carrots and huge onions crowd the stalls. "Here yer are, ladies, look at the best bunch of greens in the market!" "Now then, ingens!" and such like cries, resound on every side. It seems impossible that the inhabitants of any half dozen parishes in London could consume three-quarters of a mile of green-stuff. But it will all be sold in a few hours, and we need not think that all the good folks about us are vegetarians, for there are butchers' shops by the dozen; shops laden with bacon, pickled pork, cow-heel, tripe, faggots, and ready roasted pork, half-cold shoulder of mutton soddened in fat, rolly puddings, pigs' trotters, sausages, and saveloys. Whelks are abundant and awful, gigantic and slimy, drawn from their twisted shells by the pneumatic power of human suction, and swallowed with gusto. Stewed eels are popular at shops and stalls, and children get spoonfuls from the cups of the delicious fluid, looking something like pea-green curds and whey, while their mothers are enjoying and chatting over a Saturday night's treat.

The butchers are in a state of chronic rivalry and warfare. They are hoarse with shouting invitations to their customers, and with abusing each other. The shops are lined with meat, rising in tiers to the first-floor window, and pieces of beef, flabby in texture and scanty of fat, swing from projecting hooks in front, being kept in a state of gyration, as if roasting, by well-directed slaps of the butchers' hands. "Fine meat! fine meat at seven-and-a-half! Use you well, ladies—use you well; don't buy the cag-mag over the way," shouts one vendor. Another falls back into the roadway, and, in a burst of admiration at his own display, roars out, "Beautiful meat! fine meat! [very inappropriate adjective] fine meat!" At Christmas time the joke is perpetrated of fixing a many-coloured rosette to a skinny bit of the ribs of a deceased cow, by way of reminding the purchasing public that it is the season for prize meat. The pork-butchers are as loud-voiced as their fellow-tradesmen or the stentorian costermonger with his cabbages. The lively individual seizes hold of a streaky bit of pickled pork, and holding it high above his head, shouts out, "Here's a colour for pork! Here's pork for six-and-a-half!"

At the fish stalls, huge cod, looking tolerably fresh, are cut up at twopence-halfpenny a pound, which sets us thinking on what has lately been written about the profits of fishmongers. Oysters, each as big as a cheese-plate, are in great demand. Potato-ovens, shaped in imitation of locomotive engines, are filled with big "murphies," which, when cut, are really the "balls of flour" the proprietor calls them. There are stalls for the sale of cobbled boots and shoes, and for new articles of the same species; for bonnet-shapes, tapes, braid, artificial flowers, cheap Brummagem jewellery, needles, knitted nightcaps, combs, toys, crockery, glass, tinware, second-hand clothes, and innumerable other matters. The grocers' shops are the "Original Teapots;" the milliners have for sale "five hundred cap fronts under cost price." At the edge of the pavement are little heaps of woollen jackets, socks, and frocks for children, all dirty and second-hand, but apparently much sought after. Narrow, dark alleys pour out a motley crowd into the main thoroughfare, and swell the varied throng; shoeless street boys "chivey" each other in and out among the stalls; faded women offer needlework dolls for sale; staggering men, muddled with drink (for the gin-palaces and beer-shops are crowded, and those who have spent their money are continually making way for new arrivals), jostle the young wife carrying home the Sunday's shoulder (the knuckle showing under the shawl), the bunch of greens, the new saucepan, and the "gee-gee" for Tommy, and relating the week's experience to her friend and neighbour, Mrs. Brown.

Cart traffic is almost out of the question, but occasionally a loaded vehicle enters the street, bound for one of the narrow cross streets. The driver cares little for deranging a stall or two as he turns the corner, and grins derisively at the proprietress, who assails him with a volley of compliments, three-parts composed of words which no dictionary contains—at least, not as bearing the meaning attached to them by the irate woman.

There are many accessories of the strange scene, some enlivening, some saddening. A swarm of half-naked boys rush past us, yelling and hooting, and we have scarcely recovered our footing when we are again jostled—this time by half-a-dozen rough labourers, bearing on their shoulders a plain coffin, which they are taking to the widowed home of one of their mates, and to-morrow will carry, followed by two or three dozen others, to the cheap cemetery, the expenses of which will be met by a "friendly lead," or subscription.

Such are some of the scenes which may be witnessed on Saturday night in a London "poor man's market."

Progress of Chemistry.

II.—THE SACRED ART.

Why did chemistry so long remain stationary, and why has it made such rapid progress within the past hundred years?

To reply to this question, which is applicable to nearly all the sciences, we must place ourselves at a high point of view. Everything reveals the twofold nature of man. Body and mind are equally in want of nourishment; but if this want is a necessity to the first it is only optional to the second. It is to this radical difference that we must trace the two opposite manners in which intellectual and manual labour have ever been treated.

In Greco-Roman society, all the arts tributary to chemistry were exercised by slaves—by beings who, to the citizens of Athens and of Rome, were scarcely a portion of the human race. Whoever manipulated matter to shape or transform it was regarded as unworthy of intercourse with philosophers. An abyss separated the thinker from the manipulator. Under these conditions, any comparison between theory and practice was difficult, if not impossible. To the great injury of science, the artist kept his secrets, and the philosopher his ideas, instead of correcting the one by the other, as they should have done in the interests of society.

It was in this manner that, from the first, the divorce of reasoning and experiment, of theory and fact—those two natural and necessary elements of all progress—was effected.

During the first centuries of the Christian era, chemistry was called the *sacred art*. The priests of Egypt were its first teachers. It was in the temples of Thebes and Memphis that the initiated practised the *divine science*—another name given to the sacred art. Of what was understood by this we remain ignorant; but it appears certain that it consisted of some very simple experiments to arrive at interpretations and doctrines which permitted their dogmatic beliefs to be partly seen.

Let us give some examples:—Water is heated in a vase: the water is converted into steam, becomes impalpable as air, and leaves a powder—

a white earth—as a residue. This was a fact. This experimental fact was as true then as it is now, and as it will be for all time. But what conclusion did the priests draw from it? Why, that water was changed into earth and air—that, in fact, matter was transformed. From transformation to metempsychosis is but a step. This conclusion was perfectly legitimate at a period when they were ignorant of the composition of air and water.

Another example. They burned or *calcined* lead or tin in contact with the atmosphere. The metal became changed into a sort of lime or calx; this was the *death* of the metal. Now, upon taking this calx and heating it with grains of wheat, the operator saw the metal resume its original form and properties. What did they conclude from this fact? That, with the aid of the purifying fire, the grains of wheat possessed the virtue of resuscitating or *revivifying* the burnt metal. Was not this an exhibition of the miracle of the resurrection? It was so believed during several centuries. The vestiges of this belief remain to this day in the terms *reviver, revivification*, employed as synonyms of deoxidise, deoxidisation. Grains of corn were the symbols of resurrection or immortality, as the bags of wheat found in Egyptian mummies seem to prove.

These facts serve to show how prejudicial religious symbolism has been to the progress of science. If they had sought to interpret these facts by means of experiment combined with reasoning, it would probably have not been long before they recognised that the action of the grains of corn revivifying the rusted metals (oxides) is only due to the carbon they contain, and that the white earth which water leaves after evaporation is a residue of the salts naturally contained in the water.

But to arrive at truth man must pass through error. The reign of reason is preceded by that of imagination. The erroneous way of the sacred art was followed by alchemy.

ALCHEMY.

"Everything in Nature is transformed—nothing perishes."

Such is the enunciation of a general fact, which the science of the ancients suspected, and modern science has proved. The alchemists also admitted it; they even established most of their doctrines upon it. But following the example of the adepts in the sacred art, of which the alchemists were only the continuers, they drew erroneous inductions from a few plain experiments.

Thus, for example, lead disappears when calcined in cupels made of ashes, or burnt bones pulverised; only a button of pure silver remains. The operators could not do otherwise than conclude from this fact that the lead was changed—*transmuted* into silver; for they were ignorant of the fact that the calx or oxide of lead formed during calcination is absorbed by the substance of the cupel, and that the small quantity of silver which remains is derived from the naturally argentiferous lead.

The alchemists also knew that *aqua fortis* (nitric acid) dissolves copper, and that when a piece of iron is immersed in such a solution, the copper is revived, while the iron disappears. If we put ourselves in the place of the alchemists, in presence of this fact, so singular in appearance, should we not have said with them that "iron is changed into copper?"

The famous theory of the *transmutation of metals* rests, therefore, upon positive, indisputable facts; but these facts were at that time understood and interpreted differently from what they are at the present day. These different ways of viewing things attest the pre-eminence of thought—at the same time generaliser and rectifier—over irrational observation, or the simple exercise of the senses.

We must not look disdainfully upon our predecessors. If we were in their place, we should deceive ourselves as they did in taking a simple phenomenon of exchange for a transformation. Perhaps they did not attach—who knows?—any other absolute doctrinal sense than we apply to it. To be just towards those who have lived before us, we must in some measure identify ourselves with their thoughts, and not judge them through the prism of the science of our day—that sum total of knowledge slowly acquired.

What might have led to the belief in the transmutation of metals is, that in the absence of all analysis, there were no other means of appreciating their nature except by their aspect, colour—in a word, by the whole of their external characters. The alchemists employed only the balance, and they knew of but a very small number of solvents or re-agents. There is, therefore, nothing astonishing in their having taken, in the best possible faith, chrysocolla for gold.

During the Middle Ages science, like literature, showed great partiality for allegories and comparisons. The alchemists, imitating the example of the Minnesingers, their contemporaries, looked only to the brilliancy of the surface—they rarely went to the bottom of things.

The symbol of gold was the sun. All plants with yellow sap and flowers were supposed to contain gold. Thus, the buttercup, primrose, St. John's wort, the juice of rhubarb, and celandine, played a prominent part in the operations of the *chrysopoets*, or *gold-makers*; such is the name the alchemists bore in the treatises on the *sacred art*.

The animal kingdom also furnished representations of the king of metals, *rex metallorum*. The salamander is represented in certain alchemical books amid a flaming fire, with a golden crown upon its head. It owed this distinction to the yellow spots with which its body is covered.

Sulphur passed for being a marvellous element, less on account of its colour than by its blackening almost all the metals in combining with them. When mercury was made to fall under the form of a fine rain (by passing it through a piece of linen) upon melted sulphur, a black substance was obtained. This substance, heated in close vessels, volatilised without change, and was found to be transformed into a beautiful red material. It was difficult to believe that these two bodies were identical, unless it were known that they are both composed of the same quantities of sulphur and mercury. This faculty of the same body assuming two different molecular states has received the name of *isomerism*, which is a happy abbreviation of a periphrase, but not an explanation.

How this unlooked-for change of a black compound into a red must have struck the imagination of the alchemists! Their allegoric rapture did not slumber. The black sulphide of mercury which, by sublimation, passed to the state of red sulphide (cinnabar) was the *black eagle* which became metamorphosed into the *red lion*. Black and red were symbols of darkness and light—of the good and evil principle.

The fumes of arsenic whiten copper. This fact, known long ago, gave rise to a host of mysterious enigmas upon the means of changing copper into silver. One of these enigmas was attributed to the Sybil. Besides, the word arsenic adapted itself marvellously to the fictions of alchemy. This word, *arsenicon*, in Greek, signifies, literally, *male*. Now, copper consecrated to Venus represented the female principle. White copper, the *silver* of the alchemists was, therefore the product of the union of the male principle with the female principle.

Nature is now as it has ever been. The ancients had the same eyes to see with that we have; but they had not the same way of understanding things. It is the human mind that varies. In their way of conceiving the composition or the molecular motion of bodies, the alchemists have varied, as the astronomers have done in their manner of interpreting the composition of the sky, or the motions of the stars. Whether it be chemistry or astronomy, it is always occupied with the mysterious world of atoms. Magnitude went for nothing: the radiant star and the invisible atom of the crystal were both lost in the infinite.

(*To be continued.*)

Things Talked About.

The extremely practical Emperor of the French, who has discovered that the comfort and prosperity of the working class are fit subjects for a Royal speech, is well seconded by the amiable partner of his Imperial throne. The Empress Eugénie has undertaken to build 300 houses for the working classes, at Montrouge. The rooms will be airy, spacious, well supplied with water, and all the appliances of comfort; and single persons may have lodgings for about £4 a year, and families for £8, £10, or £12, according to the space required. Easy arrangements for paying even such low rents will be made; and if, unfortunately, the money is not forthcoming, there will be no "broker's man," but a simple notice to leave, and the exaction of a verbal promise to pay when times mend. We presume that the houses are intended to be self-supporting; if so, it would be interesting to see the calculations on which the tariff of rentals is based.

Mr. Peabody, with a really colossal generosity, has placed the sum of £100,000 at the disposal of the trustees of the Peabody Fund. His total contribution towards the welfare of the metropolitan working classes now amounts to a quarter of a million. There is a prodigious power of good in such a trust; we most earnestly beg the eminent men who administer it to see that no cause of cavil arises.

We mentioned last week that the Metropolitan Association for the Improvement of the Dwellings of the Industrious Classes had made certain arrangements with the Marquis of Westminster, for the purpose of obtaining a large plot of land. We are now informed of the exact terms of the arrangement:—The terms of the agreement are these: the marquis lets to the association a plot of ground for a term of 99 years, at the merely nominal rent of £40 a year. On this plot the company are to erect suitable dwellings for 149 families. The marquis stipulates that these are to be let at moderate rents, calculated, when all are filled, to produce a net return of five per cent. on the outlay. The requisite capital is to be lent by the marquis to the association on the mortgage of the buildings and land, and he is to receive as interest only three per cent. The remaining two per cent., subject to the deductions incident on change of occupancy and temporary vacancies, is to be retained by the association for the expense and trouble of management. The arrangement is very liberal on the part of the marquis, and shows that when working men are disposed to help themselves, they may expect help from others; and help, too, which involves no sacrifice of independence.

We are glad to hear of the thriving condition of one of the worthiest middle-class institutions of this country, the Manchester Athenæum. At the meeting on Wednesday, the 31st ult., the report of the directors showed that there had been an increase of 190 members on the past year. The receipts had advanced, and the expenses were little more than before. During the year, 44,290 copies of daily and weekly papers, magazines, and reviews had been supplied to the news-room. If the members are not well abreast of the facts and ideas of the day, it is clearly not the fault of the directors. There are nearly 15,000 volumes in the library, and the issues to members had amounted during the year to about 53,000. But notwithstanding this vast amount of literary culture and recreation, the bodies of the members had not been neglected in favour of the brains; for we find that the Gymnastic Club had so advanced in favour, that increased space had been furnished, and the members had carried off substantial honours at various public displays. The Manchester youths are determined that neither body nor mind shall be puny. Nearly twenty-seven years since, Mr. Cobden assisted at the inauguration of the Athenæum; and very soon a fine portrait of the great free-trader, painted expressly for the institution, will adorn its walls.

Prominent among the articles exhibited at the Liverpool Industrial and Fine Arts Exhibition are various articles of drawing and dining room furniture, elaborately carved with historical designs by Colonel Chambers, the friend of Garibaldi. The local critics speak in enthusiastic terms of the talent displayed.

Last year close upon 200,000 immigrants arrived at New York, and of that number more than two-thirds were from the United Kingdom.

An absconding secretary of the Carpenters' Society at Rochdale has been apprehended. His defalcations amount to £54.

The London chair-makers, couch-makers, and carvers are asking for an advance of wages, to the extent of ten per cent. It was stated at a recent meeting that many of the masters were willing to accede to the demand. A trade protection society was formed, and a determination to maintain their ground was unanimously expressed by the men.

The ship-carpenters on the Tyne have ended their strike by a compromise, by giving up their half-hour at four o'clock for tea, and leaving off at five o'clock. The working time is now nine and a half hours. In the iron ship-building yards terms have not yet been arranged.

The mode of paying wages to the workmen employed at the North Engine Works, at Darlington, and at the Shildon Works, on the Stockton and Darlington Railway, has led to a strike, not, however, of long continuance. At Shildon the men are paid monthly, and the times of payment at the other works are irregular. Much inconvenience has been sustained, and the credit system has thriven, to the great disadvantage of the men. A more legitimate cause of grievance has seldom been established, and we are glad to see that a satisfactory settlement has been made.

Some of the Ayrshire colliers are out on strike for an advance; and the iron miners are following their example, supported by the Clyde miners.

The question of the Sunday Evening Lectures at St. Martin's Hall, which have excited some controversy in our columns, is, for a time at least, settled. It has been discovered that an Act of Parliament, passed in 1781, and unrepealed by any subsequent statute, forbids the discussion of subjects bearing on theology and the performance of music by professional singers, and

taking money at the doors, the penalty to which the owner of the place is liable being £200 a day. Of course the proprietor of the hall declines to incur any such risk; and a case will be submitted to the Court of Queen's Bench, to ascertain whether the "Sunday Evenings for the People" come under the operation of the Act. If judgment goes against the promoters of the "Evenings," an endeavour will be made to obtain a repeal of the Act. In the meantime the hall is closed.

Week-day scientific lectures of a popular character, especially intended for the advantage of the poorer classes, are being attempted at Manchester. The first of the series, by Professor Roscoe, of Owen's College, on the elementary principles of chemistry, was well attended, the audience chiefly consisting of the labouring class.

Meetings of the men employed in agricultural labour are still being held in Scotland. One of the latest reported was at Tranent. The place was the Mechanics' Hall, and the object to consider the propriety of joining the Scottish Association, which has originated in Mid-Lothian for the purpose, among others, of raising the remuneration of the hinds in Scotland. The attendance was so numerous that the hall proved sufficient to accommodate only half the number present; and the result was that after the proceedings of the first meeting had terminated, the room was emptied, and the business was gone over *de novo* with a fresh audience. One of the speakers said, that if the co-operative system were adopted in East Lothian, the hinds would, in the course of twenty years, be able to farm half the county. The present system of payment by the half-year, and partly in kind, was heartily condemned, and weekly—or at the most, fortnightly—payments warmly advocated. As in the case of the engineers already noted, the men feel how much they lose by the want of ready money.

Several owners of small house property at Paddington have been summoned for neglecting to put the houses in a habitable condition. They have been allowed a week to complete the necessary work, and in the meantime the summonses stand over. Mr. Giffard, the sanitary inspector, deserves great credit for his activity in bringing neglectful landlords to book.

The Birkenhead Commissioners have made arrangements for the purchase of a site for the erection of public baths. It would be well if other wealthy corporations would follow their example.

General Information.

CLUBS AND INSTITUTES.

Holloway Working Men's Club and Institute.—On Monday, 22nd Jan., the annual business meeting was held. The president, Mr. Alderman Lusk, M.P., took the chair, supported by C. Sawbridge, Esq., C.C. (Treasurer), G. Powell, Esq., and G. Startiu, Esq. (Vice-Presidents), and a good attendance of the members. The chairman was very warmly received, and made a short opening speech full of quiet humour and sound common sense. The Hon. Sec. (Mr. Tattersall) then read the report, of which the following is an abstract:—"The operations of the past year had been marked by steady, if not brilliant success. The following had been the average numbers—

	On the books.	Paid weekly.	Daily attendance.
Summer Quarters . .	168	87	33
Winter ditto . . .	233	123	54

These numbers were somewhat below the previous year, owing mainly to the rigid exclusion of youths under eighteen years of age, but that exclusion had improved the orderly working of the club. The library had been used by 90 members, to whom 404 volumes had been issued. Gifts of readable books would be very welcome. An elocution class, and classes for instruction in reading, writing, and arithmetic, had continued in operation; and a chess club, a boot club, and a temperance association had been formed during the year. Thirty lectures, concerts, and entertainments had been given, and it was gratifying to be able to record a marked improvement in the attendance at the lectures. When first commenced, two years ago, the majority were perfectly indifferent to the lectures, but their interest had gradually increased until now the rooms were frequently crowded. A very pleasant excursion to Petersham Park had taken place in the summer, and two well-attended tea-meetings had been held. A profit of £9 19s. 7½d. had been realised by the sale of refreshments. The income had been £129 13s. 5½d., of which sum £54 14s. 5½d. had been raised within the walls of the club, and the expenditure had been £135 10s. 5d., leaving a balance of £5 16s. 11¾d. due to the treasurer. The most important and most gratifying incident of the year had been a spontaneous movement, on the part of the members, to increase the subscription from 1d. per week and 1s. 1d. per quarter, to 2d. per week, 6d. per month, or 1s. 6d. per quarter. This resolution was not only financially important, but particularly valuable as a conclusive proof of the members' appreciation of the advantages of the club." The various officers for the ensuing year were elected; some alterations in the rules made; and a very hearty meeting concluded with a cordial vote of thanks to the chairman. Before the conclusion of the meeting a liberal donation of £5 5s. from the chairman, with other amounts from various friends, turned the balance due to the treasurer into a balance in favour of the club.

Lightcliffe and Hipperholme Young Men's Society.—This society is situate in a beautiful suburb of Halifax, Yorkshire. The third annual *soirée* has just taken place. The proceedings were commenced with tea, after which the chair was occupied by D. Abercrombie, Esq., a gentleman resident in the neighbourhood. The report was read by the secretary, Mr. J. Crossley, and stated that the society was established nearly four years ago, with about half-a-dozen members. Weekly meetings have been held for instruction, consisting of history, geography, essays, and debates, all of which have proved so interesting, that the number of members is now eighty. In addition, a news-room has been established, and is well attended, supplied with daily and weekly papers, monthly and other periodicals; and there is also a library. Quarterly "coffee meetings" have been held by the members, which have proved immensely successful, and have been the means of drawing away a large number of young working men from the public-house, and providing for them a wholesome means of recreation, amusement, and instruction. The rooms are also open nightly (except Sunday), for reading, chess, draughts, music, &c. During summer a large field near the institution is used for cricket, which has answered the object of keeping the members together, and proved an excellent source of amusement. One remarkable feature of the society is this, that it has been *self-supporting;* for although surrounded by wealthy gentlemen of Bradford and Halifax, the society has not received £6 in donations. Each member pays 2s. a quarter, and out of this sum all expenses have been paid without running into debt. The society has also established annual trips, which hitherto have proved attractive and beneficial. Added to all, classes for teaching reading, writing, and mathematics are held during the winter, taught by members; and it is a most interesting sight to see men from twenty, thirty, and up to forty years of age, sitting down to learn to read. The improvement which has been achieved in these departments is astonishing. Men who, after their day's labour and toil was ended, spent their evenings in idleness and dissipation, are now pleasantly and profitably spending their leisure hours in gaining knowledge. These facts, as detailed in the report, were received with much gratification by a crowded meeting.

Wisbeach Working Men's Club and Institute.—The second anniversary of this society was celebrated on Monday, Jan. 29, by a public tea-meeting and *soirée.* Jonathan Peckover, Esq., banker, president of the club, occupied the chair; and the secretary, Mr. Balding, read an interesting report, which showed a satisfactory state of affairs, though the club is greatly in want of two or three more rooms. Some penny readings in the winter, and a capital cricket club in the summer, in addition to the ordinary operations of the club, have been very successful; a good field for the latter purpose being kindly lent by Mr. Alexander Peckover. A very pleasing and rather novel feature in the evening's entertainment was the presentation of prizes to two young men who had written the best essays for the club, and to two others who had been judged to be the best readers for elocutionary entertainments. The names of the successful candidates were:—Mr. F. A. Baker, printer (first essay prize), read "Union is Strength;" Mr. H. Troll, printer (second essay prize), read "Has the Introduction of Machinery been beneficial to the Working Classes?" Mr. W. T. Streader, first prize for reading; Mr. W. L. Smith, second prize. The man who gained the first prize for reading is a Custom-house officer, and has saved about a dozen lives from drowning. After these proceedings, the Rev. H. Solly delivered an address; and very hearty thanks having been given to that gentleman and the chairman, and to the ladies who presided at the tea (one of whom kindly performed some pieces of music on the harmonium), the meeting separated. An Industrial Exhibition, which is expected to be of a very interesting character, is being organised by the club to open next May. An interesting fact in the history of this club is, that nearly the whole of the labour required for adapting and fitting up the premises was gratuitously given by the working men themselves.

On the following evening, a crowded meeting was held in the Institute Hall, Chatteris, Cambridgeshire, W. Seward Ruston, Esq., in the chair, to hear an address from Mr. Solly on the subject of Working Men's Clubs and Institutes. At its close, a resolution was moved by Mr. Shanks, a carpenter, and seconded by another working man, to the effect that it was desirable that a Working Men's Club and Institute, on the principles of the parent society, be established at Chatteris. This having been supported by the Rev. — Wilson, Wesleyan minister, by A. Fryer, Esq., and by W. Clarke, Esq. (of the bank), was unanimously carried. It was then resolved that all the working men desirous of forming a club should meet in the hall the following evening, for the purpose of appointing a provisional committee. Votes of thanks to the chairman and Mr. Solly having been passed, the meeting, which was considered a highly successful one, then dispersed.

Working Men's Hall, Market Drayton.—The promoters of the scheme for establishing an institution held a preliminary meeting on the evening of January 19, in the National Schoolroom, Market Drayton, the use of which has been kindly granted them for such occasions. There was a considerable number of working men present, and by this class generally the greatest interest is felt in the movement. Dr. Saxton occupied the chair, and his expressions of sympathy and promises of future assistance were received with hearty applause. The following resolutions were adopted unanimously:—Moved by Mr. W. Talbot (a working man), and seconded by Mr. W. Moore—"That in the opinion of this meeting, it is desirable to help the working men of Market Drayton to establish a Working Men's Hall and Institute in this town, upon the principles and with the objects recommended by the Institute Union of which Lord Brougham is president." Moved by Mr. T. Brown, and seconded by Mr. S. Chidlow (a working man)—"That the persons present pledge themselves to use their best exertions to make the undertaking successful, by endeavouring to procure the funds needful to carry on the club with efficiency, and that it deserves the hearty support of all classes in this town and neighbourhood." The resolutions were ably supported by various speakers, and the advantages which would be derived from such an institution by all classes, especially by working men, were dwelt upon at some length. A committee and secretary *pro tem.* were elected; Dr. Saxton consented to act as chairman, to whom a cordial vote of thanks was awarded for his services as president of the meeting. The undertaking is viewed with favour by all classes, and it is hoped that the requisite steps will be at once taken for the successful prosecution of the enterprise.

ART-EDUCATION.

Art in the Workshop.—A very praiseworthy scheme has just been published by a Birmingham firm of goldsmiths. Messrs. Randel have intimated their intention, by circular, to commence a series of drawing and design classes, to be held in their workshops twice a week. Every arrangement will be made to make it a complete studio for the study of drawing and improvement of taste as applied to their various branches—goldsmiths, jewellers, and chainmakers. There will be classes for adults, apprentices, and females. A professional draughtsman and designer will instruct the classes, and the whole will be superintended by a first-class artist. Annually there will be an entertainment in the studio, and prizes of medals, money, books, and certificates will be awarded for industry, drawing, designing, engraving, enamelling, setting, making, &c. &c.; also a discourse on art as applied to trade, with music (vocal and instrumental), refreshments, &c. &c. These arrangements, to be carried out efficiently, will involve considerable expense; but the whole will be free to the students (paper and pencils excepted).

PRIZES OPEN FOR COMPETITION TO WORKMEN.

The Yorkshire Architectural Society, with a view to encourage the study of the principles of Gothic decoration amongst the art-workmen of Yorkshire, propose to offer prizes annually, to be competed for under the following conditions:—1. Two prizes of seven and three guineas respectively, accompanied by certificates from the society, will be awarded to the producers of the two best examples of stone-carving, wood-carving, modelling in clay, or metal-work. 2. For the year 1866, the subjects will be modelled in clay, and may be selected from the following: A capital, a simple boss, a boss for groined-arching, and the filling in of the spandril of an arch. The ornamental details are to be copied from nature, conventionalised to suit the form chosen, and to be adapted to the period of decorated Gothic. 3. The models may be of full or half-size. They are to be sent in, on or before the 1st of June, 1866, addressed to "The Curator, Yorkshire Architectural Society, School of Design, Minster-yard, York." A distinctive mark or motto is to be made on the model: and a letter must also be sent to one of the secretaries, at York, J. Fowler Jones, Esq., Bootham; and Rev. G. Rowe, Training College, containing this distinguished mark, the maker's name, and a certificate from his master, or other credible person, affirming that the competitor is an artisan, and that the example which he exhibits is his own work. 4. The successful competitors are to present drawings or photographs of their models to the collections of the society. 5. The same person cannot receive both prizes. Any further information may be obtained on application to either of the secretaries, at York.

CO-OPERATION.

Barnsley (Yorkshire) Permanent Benefit Building and Investment Society.—This society, which was established about thirteen years ago, is in a very flourishing condition. From the report just presented to the members, it appears that, during the year 1865, 1,126 new shares have been taken, £7,319 9s. 6d. has been received in contributions, £3,207 17s. 3d. in loans, £314 15s. 2d. to the contingent fund; total receipts, £13,215 0s. 9d. Compared with last year (1864), there is an increase of receipts in the following departments:—In contributions, £770 13s. 6d.; loans, £481 6s. 9d.; contingent fund, £103 12s. 7d. In number of shares there is also an increase of 119. During the year 1865,

£6,647 have been advanced to members on buildings, &c., being an increase over the year 1864 of £1,354. Since the formation of this society the sum of £84,770 has been placed at its dispesal, and £41,612 has been advanced to members for building purposes.

Barnsley (Yorkshire) Corn, Flour, and Provision Society (Limited).—The annual report of the above society was issued on Saturday last, from which we learn that, during the year, a large increase in the amount of business done has been experienced. The total receipts from all sources amount to £27,358 5s. 1d.; and the entire profit, after paying all contingent expenses, is £513 13s. 8d., with which the directors propose to pay a dividend of 1s. 6d. per share, leaving a balance in hand of £91 15s. 8d. to carry to next year's account. The company consists principally of working men; and such is the large increase of business, that the directors recommend in their report the erection of additional premises for the better transaction of their widely-extending trade.

Leeds Co-operative Flour and Provision Society.—The balance-sheet of this society has just been presented to the members, and is highly satisfactory. During the past year a great and increased amount of business has been done, and the profits amount to upwards of £3,000, from which the directors recommend a division of bonus of 3s. 6d. per bag of flour, 1s. 6d. in the £1 on groceries, and 9d. in the £1 in the clothing and butchering departments.

Correspondence.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE CONDITION OF THE MECHANIC AND LABOURER.

To the Editor of the Working Man.

Sir,—I have with much pleasure read the article "Union amongst Ploughmen," in our paper of the 20th ult., by the Rev. Dr. Begg, and myself being one of the class particularly referred to in the article, I would like to offer a few remarks upon the position we hold. One who has gone through the whole routine of agricultural labour, from scarecrow at 1s. 6d. per seven days' labour, to ploughman at 11s. per week, must of necessity know something of the shifts to which labourers are put. The weary hours spent—Sunday and week-day alike—from light to dark, by the boy from eight to eleven years of age, in frightening away birds from grain recently sown, or ripening, as the case may be, shall be passed over. From eleven to fourteen years of age the boy is expected to assist in work about the homestead, or driving the horses at plough, &c., when more than two are used—his wages from 2s. to 3s. 6d. per week. From fourteen to eighteen he will have to assist the ploughman in cleaning, tending the horses, &c., with perhaps 4s. per week, and standing wages of £2 10s. or £3 a year, to be taken at the end of a year's service. From eighteen to twenty, or perhaps till later in life, he may be under ploughmen at a proportionate advance on the last-named wages. At this time of life, if he be a good workman, he may obtain a situation as head ploughman, with one shilling a week higher wages than the rest of the labourers, on account of having to tend the horses on Sunday. The wages range from 8s. to 11s. a week, being lower in some counties than in others, and varying slightly according to the price of wheat. Now, it will be readily seen from the foregoing, that it is quite impossible for the children of farm labourers in England to obtain even the meanest education. From about fourteen years of age, or when a boy takes what is termed a horse-keeper's place, he will have to rise at half-past three in the summer, and at four o'clock in the winter, clean and feed the horses till six, have a substitute for a breakfast, go to plough or other work with the horses, have another meal at ten—this in the field, or anywhere it happens to be—work till two o'clock, take the horses home, have dinner, attend to the horses the same as in the morning, till half-past five or six, and again from half-past seven to eight, when they will be finished for the night. Now, here is the evening, say from half-past five to half-past seven; the place he will have to sit in is usually a damp, cold, cheerless place, no light allowed, and fuel of the very worst description. If the public-house be near, is not the temptation very great? Besides, if one gets his clothes soaked with wet, as is often the case, how are they to be dried? The writer has worked a very great many times with his clothes soaked with wet from head to foot—has pulled them off at night, put them on again in the morning, very little drier, and this often in very severe weather. This, too, is the case with thousands.

Having referred to the utter inability of our class to obtain education, it is but just to say that evening schools have been established in some villages. But has Government ever offered any assistance, or taken the trouble to inquire at all about the welfare of the agricultural labourer? Nay; for whilst the children of the factory operative and the tradesman have had every means that could be devised to give them instruction, the village evening school has been sneered at in the public papers, the editors of which ought to have known better.

In conclusion, let me offer a little advice. By all means have *Union*. Pay a trifle a week to an Emigration Fund, and let every young able-bodied man who can handle agricultural implements emigrate to any of the colonies; he will there be able to obtain something beside a bare existence, and give his children a decent education. I am perfectly conscious of my inability to produce anything worthy the attention of your readers, but if you can, from these few facts so loosely strung together, deduce anything that would interest any class of your subscribers, you would greatly oblige yours obediently,

A Poor Ignorant Ploughman.

WHERE ARE THE CO-OPERATORS OF LONDON?

To the Editor of the Working Man.

Sir,—As a working man, it is with great satisfaction, that I welcome my namesake, which I conceive will be to him who gains his bread by the sweat of his brow, as the *Times* is to the lawyer or politician. Mr. Editor, as you heartily invite discussion in your columns on all matters affecting the welfare of the labouring classes, I trust many of my fellow workers will avail themselves of this opportunity as I now venture to do.

Sir, where are the co-operators of London? I mean not co-operation among the middle and upper classes, for I see abundance of that in this great metropolis, I mean co-operation among working men. I looked far and near, up and down these busy streets, for a prosperous co-operative store, but looked in vain. When working men's clubs began to spread, methought one of their first fruits was to be co-operation, but the blossom has not yet appeared. I know co-operation has been tried in London, but failed. Why? Because it is false in principle, or because it is a weak ship to venture out to sea in? No, that cannot be, for Lancashire has proved that it is a place of refuge in distress. The philosopher tells us it is sound in principle. The statesman acknowledges that by it the working classes will raise themselves to a higher social position. The divine proclaims it to be a Divine institution. Then who will be bold enough to deny it success, if the working classes take it up and handle it rightly? Where I work, there are five mechanics, three of whom have been members of three different co-operative societies, one of which failed because of mismanagement, the other two failed for want of co-operators. It is said that co-operation is in its infancy—yes, it is all but dead in our midst; and it is a shame to us working men that it is so. Maybe, in some "Toad Lane" in this great London, some score of industrious labourers are striving to realise the "weavers' dream." I am almost certain, Mr. Editor, that among the many workmen of this great metropolis there are as many good co-operators as would form a society in each district, if they were only brought together. The inhabitants of a village or manufacturing town all know one another; but in a large place like this we hardly know our next door neighbour. I trust, however, your excellent paper will be the means of bringing co-operators together. I know six ready to join or help to form a society in the district E.C.—Sir, I am, &c.,

Co-operator.

THE WAKEFIELD INDUSTRIAL AND FINE ARTS EXHIBITION.

To the Editor of the Working Man.

Sir,—Your account of the Preston Industrial Exhibition would lead your readers to suppose that it has been the most successful exhibition which has yet been held; I trust, therefore, you will insert this letter in your next issue, as there is no doubt that the Wakefield Exhibition has been still more successful. For, though the number of persons who visited the Preston Exhibition was 200,050, and the number of persons who visited the Wakefield Exhibition was 189,653, yet it must be remembered that the Preston Exhibition was open 67 days and the Wakefield Exhibition only 42 days; that the charges to the Preston Exhibition were often only 2d. and 1d., whilst the price of admission to the Wakefield Exhibition was never, except on one day, October 16—and that only for the admission of children—lower than 6d.; besides which, whilst the surplus arising from the Preston Exhibition is £2,200, ours will be about £3,000.

Thus, without wishing to detract from the success of the Preston Exhibition, or taking away one iota of praise so justly due to the working men of Preston for the zeal and energy they have displayed, yet we still maintain that the Wakefield Industrial and Fine Arts Exhibition has been the most successful ever yet held, which is more apparent when you consider the large population of Preston, and that Wakefield is only a town of 23,000 inhabitants.—Believe me, yours faithfully, Charles E. Canbridge, M.A.,

January 26, 1866. Gen. Sec.

TRADES UNIONS.

To the Editor of the Working Man.

Sir,—Will you kindly favour me with space in your excellent paper, the advent of which I hail with lively satisfaction, believing that, if conducted in the manner stated in the opening address, it will prove of incalculable benefit to the working classes, and is, in fact, just the paper required by them; knowing that everything concerning their interests will be impartially discussed in its pages, and where they may at last expect to find sound and wholesome advice. In reading your article on Trades Unions, I cannot agree with all the writer therein states. Having had upwards of twenty years' experience in the society to which I belong (the Masons' General Union), I am convinced that its members have far higher and nobler objects in view than the materialism of the advancement of wages, as a glance at the following items, taken from the society's annual accounts, and which are carefully audited each year by three men appointed from the general society, will at once prove—viz., paid to sick members, £32,493 5s. 9½d.; for funerals, £13,545 12s. 3½d.; given to members in search of employment, £30,037 0s. 5½d.; subscribed to hospitals, £900 18s.; paid to eighty-three members, who were disabled by accident from earning their living by working at the trade, the sum of £7,765 17s.; paid to the friends of fifty-one members, who were accidentally killed, the sum of £2,425 6s. 5d.; subscribed to orphan children, £291 19s. 9½d. The above are a few objects of the society, and have been paid since September, 1840, up to December, 1864, which, I think, shows that benevolence is also an object in this trades union. I believe that the working classes of the United Kingdom have been greatly benefited, and are much indebted to these societies for the position in which they are now placed. Having, as it were, been kept in a state of continual warfare in resisting the tyranny of employers, trades unions have not had time to show their usefulness. I believe, with your correspondent, that there is ample room for amendment, such as the establishment of alms-houses for superannuated members, the building of workmen's cottages in large towns, and schools for mutual improvement, where the younger members of the trades may become educated, and would, as a consequence, become better artisans. All these, and much more, may be accomplished by trades unions. With best wishes for the success of your new publication, I am, sir, very respectfully,

A Trades Unionist.

THE PEABODY BUILDINGS.

To the Editor of the Working Man.

Sir,—Permit me to gratefully thank you for the insertion of our letter of the 20th instant, touching the oppressive treatment under which we are smarting from the superintendent of the above buildings; and we wish it to be made known that, so far from any action being taken on the suggestion thrown out of instituting every inquiry, orders have been given for every tenant who signed the letter to be served with notice to quit. Two of them are already served with such notices. Is this the way they expect to retain the decent working men?

Respectfully begging the insertion of this letter, I am, yours obediently, E. Freeman.

Peabody Buildings, Shoreditch,
31st January, 1866.

[We cannot believe that the trustees are aware of the proceedings complained of. Surely they will feel it their duty to investigate the complaints made; and even if they prove to be unfounded, and to have originated only in a litigious or dissatisfied spirit, such a measure as ejecting the complainers should not have been resorted to. The Peabody Buildings are not workhouses, and the trustees are not parochial guardians. If the tenants refuse to comply with any of the regulations of which they were aware when they entered on the tenancy, and by which, of course, they are bound, then no one could complain if they received notice to quit. But for any official to enforce his abstract right of determining the tenancy because the tenants grumble is something very like tyranny, and such a tyranny, too, as the class of persons to whom they must look for tenants are little likely to submit to. We most earnestly call the attention of Lord Stanley and the other trustees to the above and the preceding statements, which, if founded on fact, are calculated greatly to lessen in public estimation the value of the application of Mr. Peabody's most generous gift. If working men feel less at home, less at liberty, in the large blocks of buildings erected for them than in the lodgings and miserable little houses they have left, it is tolerably certain they will prefer the latter. We shall take an early opportunity of investigating and discussing in our columns the whole question of "The Peabody Fund," to which Mr. Peabody has recently most nobly added an additional £100,000.—Ed. Working Man.]

TO CORRESPONDENTS.

Coignard's Centrifugal Pump.—We have received a letter from Messrs. Gwynne, in which they state, "we were not called upon, in 1864 or at any other period, to send pumps of our manufacture to compete against those of M. Coignard or other makers; and no pumps made by us, or under our directions, were, therefore, tried with those of M. Coignard." In our article on the "Coignard Pump," we merely quoted M. Tresca's Report, published in the *Annales du Conservatoire des Arts et Métiers* for January, 1865, which refers, not to any particular pump constructed by Messrs. Gwynne, but to several pumps made on the Gwynne system, which, for aught we know to the contrary, may be of French manufacture, and probably very different from what Messrs. Gwynne would have supplied for the test, if called upon.

Lanfihangel.—The father of an apprentice is answerable to the master for the performance of the covenant by his son, and if the latter leave his service before the expiry of the term of apprenticeship, although he may be twenty-one years old, the master can sustain an action for damages against the father.

Witham, J.—A cheap Brunswick black may be made in the following manner:—Put into an iron pot 14 lbs. of pitch and 14 lbs. of coal-tar, simmer them over a gentle fire for eight or ten hours, and let the mixture stand all night; next morning boil up again, and add, as soon as it boils, 36 lbs. of drying linseed oil, then 5 lbs. of minium and 5 lbs. of litharge, and boil three hours, or until a little of the compound, dropped on a cold slab, will roll between the fingers; then stir in 90 lbs. of turpentine, or more, according to the consistency desired. This varnish will dry in half an hour, and is employed to coat ironwork, &c., before it leaves the foundry, workshop, &c.

W. T. Surgeon.—Your suggestion will be attended to. The Art Directory of the Department of Science and Art contains the information you refer to.

We request Builder and other Inquirers about Books to enclose a stamped addressed envelope, that they may receive a reply through the post instead of in our columns.

W. B. M.—Sovereigns issued by the Sydney Mint do not circulate here. You can obtain their full value at the bullion dealers.

A. M. (Halifax).—We shall be happy to receive the information as to the progress of co-operation in Halifax.

FOREMAN OF ROADS.

Applications, stating age and previous occupation, with Testimonials, for the situation of Foreman of Road Works, will be received at the Offices of the Board of Works for the Westminster District, Great Smith Street, Westminster, not later than Thursday, the 8th February. Wages, 30s. per week.

The person to be appointed must be practically acquainted with the management of macadamised and other unpaved roads.

By Order,
W. P. JEBB,
Clerk.

25, GREAT SMITH STREET,
WESTMINSTER.
31st January, 1866. [1

City of London College
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EVENING CLASS FOR CHEMISTRY, in connection with the Science and Art Department, South Kensington. Professor, the Rev. B. W. GIBSONE, M.A. Cantab., B. Sc. Lond., F.C.S., &c. &c. Fee, per Term, 6s., including admission to the Class, the Reading-Room, and the Public Lectures of the College. N.B. The Half (Lent) Term commences on February 12th, 1866. Half fees to Classes. Other Classes, for French, German, Greek, Latin, Italian, Spanish, Algebra, Geometry, Drawing, Elocution, &c. &c., under competent Professors. A fuller Prospectus can be obtained in the Library. J. MASKELL, Hon. Sec.

Government Emigration to
NEW ZEALAND.

FREE PASSAGES to CANTERBURY, N.Z., are granted by the Provincial Government to female domestic servants, and Assisted Passages to farm workmen and certain descriptions of mechanics.

Particulars of conditions may be obtained, personally or by letter.

JOHN MARSHMAN, Emigration Agent for Canterbury,
16, Charing Cross, London, S.W.

Cheap Edition for Working Men, fcap. boards, 2s. (postage 4d.),

Richard Cobden: A Biography. By JOHN MCGILCHRIST. "The narrative is so condensed, and the style at once so clear and vigorous, that the volume is eminently entitled to a popular circulation. . . . We trust that it will find its way to the bookshelves of thousands of working men."—*Morning Star.*

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BY RIGBY WASON.

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Patents for Inventions.—Messrs. DAVIES and HUNT procure British and Foreign Patents for Inventions and Registrations of Designs, at moderate charges. Full particulars given in their "Handbook for Inventors," to be had (gratis) from No. 1, Serle Street, Lincoln's Inn, London, W.C. [12

Workmen's Wages.—LAXTON'S TABLES, to enable Workmen at a glance to calculate their own Wages. Masters' Edition, cloth and gilt, 2s. 6d. (32 stamps); Workmen's Edition, folded for the pocket, 1s. (13 stamps). 34, Arundel Street, Strand. [13

Baker's Scientific Class-Book. Foolscap 8vo. Cloth boards. Pp. 360. 330 Woodcuts. Price 3s. 6d.

London: WILLIAM MACINTOSH, 24, Paternoster Row; VARTY & COX, Educational Repository, 3, Adelaide Street, Strand. [14

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A Card Plate, including 50 Ivory Cards, with your Name elegantly Engraved. Ladies' or Gents' Post Free, on receipt of 1s. 6d. in stamps to W. F. GOOD, Engraver, &c., 8, Bishop Lane, Hull.

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Superior Brads, French and STEEL, 7 lbs. for 1s. 1d. Superior ink, 9d. per gallon. Copper toes, 2s. 2d. per doz. Men's iron-bottomed lasts, 2s. per pair. 20 lbs. clean English butts, 1s. 6d. per lb. Agent for Prout's Dubbin. 21 best plates, 5s. 6d. per gross. Scotch hemp, 2s. 7d. per paper. A liberal discount to all purchasers over £1, at I. W. McLELLAN'S, Lambeth Leather Warehouse, 47, Lambeth Walk, S. [17

Working Men's College
BUILDING FUND.

STATEMENT BY THE COUNCIL.

45, Great Ormond Street, December, 1865.

This College was founded in 1854. The students are, for the most part, working men, and the teachers are, in general, members of the Universities and of different professions, or those who have themselves been students in the College. Its purpose was and is to unite these classes together, by associating them in the common work of teaching and learning. It provides instruction at the smallest possible cost (the teaching being almost wholly unpaid) in the subjects with which it most concerns English citizens to be acquainted, and thus tries to place a liberal education within the reach of working men.

In carrying out these objects we have had some measure of success. The number of students was, at the end of the first term, 145; it is now 509. With the increase in the number of students has come an increase in the number of classes, and for some time past we have been sorely pressed for space.

We want chiefly these things:—(1) A room or rooms for the Art Department. [No department of our College has been more successful than our Art Classes, carried on from the first under the general supervision of Mr. Ruskin.] (2) A moderate sized hall or room for general meetings, lectures, and social purposes, capable of containing some 300 or 400 persons. (3) A better room or rooms than we have now got for the Adult School. (4) A room to contain a Museum, and serve as a Natural History class-room. (5) More small rooms for classes.

A site is already provided, the ground in the rear of the house (12,000 square feet in area) being the freehold property of the College. We are advised that such a building as the one we require can be well and substantially built in a plain but good style for about £3,000 to £3,500.

Financially, the College is self-supporting. For several years, thanks to the excellent administration of our funds by a Students' Finance Committee, the income from students' fees has met our current expenditure, leaving a margin available for the reduction of our mortgage debt.

Considering the vast endowments which the benefactions of former ages have provided for the education of the people, endowments to which the wealthiest of us are the most indebted, it would be a disgrace to a wealthy metropolis like this if it were necessary to beg long at the present day for the inconsiderable sum we are now asking for. And the amount of labour and thought which is being voluntarily devoted to the undertaking, and by none more freely than by our students, affords, we think, some guarantee that we shall not misspend what may be given us. Finally, though many a single purse might well defray our needs, we may perhaps especially commend them to those who would be willing to take part in the teaching of this and other colleges if they were not prevented by professional and other avocations. Will they not share our work by helping us to develop it?—Signed, on behalf of the Council of Teachers,

F. D. MAURICE, Principal.

Contributions may be sent to the London and County Bank, Oxford Street branch ("Working Men's College Account"); to the Secretary, at the College (P. O. Orders to be payable to Thomas Shorter); or by cheques payable to the order of the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple, or to any member of the Council of Teachers.

Donations to the amount of £350 have already been received, or promised, including, among others, the following:—

His Royal Highness the Prince of Wales...	£25	5	0
Rev. F. D. Maurice, Principal, from publication of Lectures on the Suffrage.....	100	0	0
Ditto (proceeds of delivery of the same Lectures at the College)	12	7	10
John Stuart Mill, Esq., M.P.	5	0	0
Vernon Lushington, Esq.	50	0	0
Samuel Morley, Esq.	21	0	0
Arthur Cohen, Esq.	10	0	0
Sir Charles Bunbury	5	0	0
Francis Turner Palgrave, Esq.	5	0	0
A. Johnston, Esq.	5	0	0
Hensleigh Wedgwood, Esq.	5	0	0
Sir Thomas Phillipps	5	5	0
Miss Caroline Fox	1	1	0
George Godwin, Esq., F.R.S.	1	1	0
Rev. Henry Sandford	1	0	0
Rev. J. Ll Davies	10	0	0

[18

Practical Scientific Books on ARCHITECTURE, ENGINEERING, SURVEYING, MINING, BUILDING, AGRICULTURE, MONUMENTS, DECORATIONS, &c. Published by ATCHLEY and Co., 106, Great Russell Street, London, W. New List of Works sent free to order by post. [19

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A Reversionary Bonus, equivalent to from 30 to 60 per cent., according to the age of the assured, declared in 1863.

The Reserve Fund in hand is upwards of six times the amount of the annual life income.

THOMAS PRICE, Secretary. [20

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RENEWALS.

Insurances falling due on the 25th December should be paid on or before the 9th January.

No expense in the transfer of Policies from other offices.

Total Income from Premiums for 1864, over £125,000.

W. P. CLIREHUGH, General Manager. [21

The Accidental and Marine INSURANCE CORPORATION (Limited), 7, Bank Buildings, Old Jewry, London. Insurance against General and Railway Accidents. Marine risks at current rates.

J. W. ORAM, Secretary. [22

Alliance Assurance Company.
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Subscribed capital	£5,000,000
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Invested funds, upwards of	1,500,000
Annual income, upwards of	270,000

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The full benefit of the reduction of duty given to the insured. The sum of £1,000 on dwelling-house and furniture, formerly charged £2 8s., can be insured under the new arrangement for £1 10s.

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Notice.—The renewal receipts for the Christmas quarter are now in course of payment. [23

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Chairman—HENRY ASTE, Esq., Director of the Bank of London.

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[REGISTERED FOR TRANSMISSION ABROAD.

VOL. I.—No. 7.] SATURDAY, FEBRUARY 17, 1866. {PRICE 2D. {STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.

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THE great sight of the Blackwall Works is, however, the *steam-hammer*—that wonderful invention, without the assistance of which many of our more recent triumphs in mechanical production could never have been achieved. As we behold the ponderous and massive machinery, and become acquainted with its tremendous power, we cannot help recalling the characteristic story of its origin—how James Nasmyth, finding that there was no firm willing to undertake the forging of the great paddle-shaft of the *Great Britain*, and that it was impossible to substitute *cast* iron for *wrought* iron, at last hit upon the invention which has rendered his name famous in

* Concluded from page 82.

the industrial world. Abandoning the old idea of the hand-hammer, of which the tilt, though driven by steam, was but a modification, he devised a steam-giant like that in presence of which we stand. It was very simple, consisting merely of an anvil, a block of iron to serve as hammer, and an inverted steam cylinder, to the piston-rod of which the block or hammer was attached. Like most great inventions, it was wonderful in its very simplicity. The hammer is drawn up by means of the piston-rod, and allowed to fall by its own weight, the operation of rising and falling being conducted with marvellous swiftness—much faster, indeed, when required, than the blows given by the heavy hammer of the most skilful of smiths. Stroke after stroke descends with crushing force and marvellous precision upon the stubborn metal, and in a few moments is accomplished an amount of work which a whole army of smiths could not have completed in as many hours. It was a grand invention, one destined to assist largely in developing the mechanical resources of our country; but James Nasmyth had to share the fate of many other inventors before he could reap the fame and profits of his discovery. Changing their minds, the directors of the Great Western Steamship Company abandoned the idea of making the *Great Britain* a paddle-wheel vessel, and resolved that she should be fitted with the screw. This rendered Nasmyth's invention unnecessary for the moment; and the iron trade being in a bad condition, the unlucky inventor could find no one willing to incur the expense of the experiments necessary for testing its utility in the workshop for general purposes, particularly for heavy work. In vain he pointed out how it must succeed: the iron-masters shrugged their shoulders and turned away. They thought James Nasmyth a man with a crotchet. They little dreamed that his so-called "crotchet" would one day be hailed by them as an indispensable auxiliary in their workshops. Yet so it was. Travelling one day through France, he called at the Creusot Iron Works, the proprietor of which, M. Schneider, together with M. Bourdon, his practical mechanic, had some time previously visited Mr. Nasmyth's works at Patricroft, and had been shown by Mr. Gaskell, Mr. Nasmyth's partner, the latter's design for the steam-hammer. Mr. Nasmyth had been told of this, but the circumstance had slipped from his memory; consequently, when he visited the Creusot Works, he was astounded to find his invention in full work. At first he could scarcely believe it; but he soon understood the true facts of the case; and hastening home, besought his partner to assist him in securing the English patent. He might as well have spoken to the winds; for Mr. Gaskell, alarmed at the fearfully depressed state of business, resolutely refused to advance a farthing; and it was only by the timely help of his brother-in-law that Mr. Nasmyth was enabled to secure the patent. This was in June, 1840. Since then the steam-hammer has become one of the most useful appliances of modern mechanical industry.

At the Blackwall Works there are several of these steam-hammers, each differing in size, weight, and character, and fitted properly for the different kinds of work which they have to perform. The hammer represented in our illustration is used for forging angle and bar-iron, and the comparative ease with which the ponderous masses of almost white-hot iron are brought under the influence of the hammer is truly surprising. A large and powerful crane is first attached to the main portion, or rather that not required to be heated, of the metal. This swings the entire length between the hammer and the furnace; and when the metal is heated to the requisite tenacity, it is swung, by means of the crane, from the furnace on to the anvil under the carefully-poised hammer. A man, elevated some three or four feet, raises a lever, which, admitting the steam into the cylinder, sets the piston in motion in order to raise the massive weight: at a given moment, this weight is released, and descends with a rapidity and power that literally shakes the earthen floor. There is something grand in the contemplation of this latest marvel of mechanical genius and skill. The mighty mass of iron which forms the hammer, and which weighs several tons, is moved up and down as easily as a child would a toy; and is sometimes suspended in mid-air while the iron below is turned or regulated. After the forging process, additional pieces of cold iron are placed upon the metal which has been hammered, and the whole is swung back into the furnace, to be, when re-heated, again subjected to the influence of the steam-hammer.

There is one hammer at the Blackwall Works which strikes blows, each equal to a force of *ninety tons!* This is used for the largest and heaviest descriptions of work; yet so accurately can its action be regulated, that while with one blow it is capable of flattening a bar of iron, with another it will break a nut without crushing the kernel!

The *steam punch* is another interesting mechanical invention. It is used for punching holes in the iron plates, or skins, for the sides of ships. The process in which the machine plays the principal part, is one necessitating the employment of several men. Six men lift the massive sheet which is to be pierced under the machine, while another places under the punch the portion on which it is to descend. In such operations, the plate of metal is previously marked with small circles of chalk on the spots intended to be punched out, the plates being moved backwards and forwards until the work is finished. The holes thus made are for the purpose of receiving the rivets by which the various plates are fastened together. In the larger and heavier plates, much more powerful marking is required.

The *shears* are for the purpose of cutting and sharpening the plates to the required forms—operations which are performed as easily as a lady would cut a piece of linen. The hydraulic machine for the *curving* of the steel plates for armour ships, according to the curve required, is one worth seeing. The plate is raised by means of two sets of chains, coming from one crank or windlass, which is capable of being regulated with the greatest nicety. The peculiar form given to the plate arises from its being placed between the under-surface of the beam and the top of the piston-rod working in the cylinder, pieces of iron being placed upon the top of the plate according to the shape required to be produced, the other portions of the plate being raised up by the top, or cushion, of the hydraulic shaft. The power exerted by this machinery is enormous, the pressure sometimes amounting to a force equal to *one thousand eight hundred and seventy-five tons* on the circular inch! The cylinder is 2 ft. 6 in. in diameter. Well might it have been suggested, during the war with Russia, that the destruction of Sebastopol should have been entrusted to the skill and ingenuity of our mechanicians. Happily, their services are not needed at present in the arts of war.

The *steam drilling-machine* is the next object to be noticed. It is used for drilling holes into the steel armour-plates, a process which is performed in a very easy and rapid manner. The steel plate, four and a half inches thick, is moved upon a railway until it is brought under the drill, after which the hole required to be finished off by the machine is fixed under the small revolving chisel, which is of extreme hardness, adapted to the quality of the plate. The chisel is kept cool by means of soft soap and water, which is poured into the hole, by means of a small pipe, from a movable source. The armour-plates which have to be drilled not unfrequently weigh upwards of seven tons.

The *shaping* of the ribs, or curved iron used for the framework of the vessel, is a curious and ingeniously-performed operation. For this purpose a large iron platform is prepared. This platform is pierced with a number of holes, laid at right angles with each other. The shape of the required curve is chalked upon the platform, and iron brackets, or oblong pieces of iron, are fastened to it by pegs of iron fitting into the holes in the platform, thus marking out the curve to be given to the iron rib. The rib, or girder, is then drawn from a furnace made long enough to heat the whole length of the metal, after which it is placed upon the platform and drawn to the shape marked by the brackets. Men are ready with large hammers to keep it to the proper curve until it cools, when, of course, the required form is retained. Almost every description of curve can be thus produced by this skilful contrivance. Between the different platforms are small open forges, where the iron, when necessary, can be heated, to save the trouble of pulling the whole length.

The various parts of the ship, after being prepared by the different processes thus described, are taken, as required, to the slip on which the future vessel is to be built. Here the massive framework is solidly put together, and covered with a sheeting of iron plates, the whole being completed in a wonderfully short period of time, considering the vast amount of work to be got through. Hour after hour, the neighbourhood of the ship rings with the noise of the hammers and other tools wielded by the various artificers. This continues for several weeks; then there comes a lull, then gay and festive preparations, a launch, and ere long the noble and beautifully-constructed vessel rides the silvery waters "like a thing of life," ready to brave the tempests of the mighty ocean, and to bear its valuable freight to any part of the world which a ship may reach.

Floating Co-operation.

A new species of Co-operation has been set moving in the metropolis. Hitherto, Co-operation has only been found possible in a fixed spot. A stationary store has been formed, and customers have been attracted around it. Lately, however, a species of floating Co-operation has been instituted in London, and which we think may be adapted to the uses of working men.

Some sagacious members of the Civil Service have hit upon the plan of getting their members supplied with all kinds of articles at wholesale prices. They have formed what they term a "Civil Service Supply Association." Each member pays the sum of half-a-crown, and receives a gilt lettered card, which, on presentation at certain depôts, entitles him to be dealt with as a wholesale customer. The leading members of the society go round to certain tradesmen, and say, "We are 20,000 strong; provided we come in considerable numbers to your shop, and make purchases with ready money, will you treat us as wholesale customers?" Tradesmen who agree to do so, are set down in a printed list, which is supplied to each member of the Supply Association, and he, as he has occasion, calls and makes his purchases of such dealers. In this way each member effects a saving of 25 per cent., and in some cases of thirty. He thus becomes a member of a Peripatetic Co-operative Society, whose stores are situated all over the town. The money thus saved in purchases is not saved as in a Co-operative Society of the fixed kind, by allowing the profits to accumulate for future advantage; but the habit of paying ready money and avoiding credit, is confirmed.

Surely something of this nature is possible among working men. If a society were organised by a few intelligent and responsible artisans, it would be possible to find tradesmen in every part of London who would be ready to treat such a body of purchasers, as might soon be enrolled, as wholesale customers. The purchases of the better class of artisans are not despicable—very far from it; their wages, as a rule, rank as high as those of the majority of clerks in the Civil Service. As there exists as yet no great Co-operative Societies in London, it would be desirable to multiply the species of floating Co-operation we have described. Without waiting for the formation of local societies, with fixed stores, it would be an undoubted benefit to convert as many existing shops as possible into virtual Co-operative Stores. A large wholesale trade is often more profitable to a tradesman than a small retail one; and we have no doubt that many dealers would be found willing to enter upon the scheme we suggest. By selecting a limited number of shops in each district, supplying the different articles of commerce generally required, considerable custom could be guaranteed. The benefits of cheapness and quality could thus be secured to the working-class families entering into the "Working Man's Supply Society." The habit of paying ready money would be stimulated by the temptation of cheapness, and the moral deterioration of debt would be gradually corrected in many families where it now exists.

The Australian Gold Coinage.—A proclamation by her Majesty in Council is published in the *Gazette*, declaring that gold coins made at the Sydney Mint shall be a legal tender within the United Kingdom of Great Britain and Ireland, and imposing a charge of threepence per ounce troy of standard gold on the coinage of gold at the said branch mint, being a charge sufficient to defray the expenses of coinage over and above the expenses of assay and refining.

The Cab Trade.

Few persons know much more about cabs than that they sometimes ride in them, and pay the full fare; that they are to be found on the "ranks," and also in the streets "looking out," where they are great nuisances, as helping to block the overgrown regular traffic. Some people affect to believe that cabmen regard society as their natural prey, from which it is both lawful and proper to get as many extra sixpences as circumstances allow. That there are drunken cabmen, dishonest cabmen, and insolent cabmen, are facts as indisputable as that there are sober cabmen, honest cabmen, civil cabmen. Likewise it has to be allowed that there are "frames" called horses, and "dust bins" licensed as cabs, and also that there are strong, fast-trotting animals, with clean, well-kept cabs. To steer a cab through the streets of London requires a clear eye, but no very great degree of education, and it may be fairly questioned whether a like number of men in their condition of life conduct themselves better. Besides which, they are exposed to a good many temptations. All horse business is of a more or less mysterious character, about which exact truth is not easily to be learnt. It is not, therefore, to be pretended that the percentage of profit can be given, though it may be stated that a master who is pretty well up in its details, and looks well after his horses, makes a very fair profit. Like most other trades, it has peculiar risks, and has to face sharp competition.

The system between master and driver is quite different to that between most employers and their men. The cab-owner does not engage so many drivers, and send them forth to earn what they can for them, but lets his cabs to them at so much per day, only short accounts being kept; and then the driver proceeds to do the best he can for himself and family. This system inflicts no hardship on the man, and is a safe protection for the master against short returns. Each party is safe against the other. To carry on anything like a business requires some little capital. The cost of Hansoms and four-wheelers is about the same—at least, within two or three pounds—and averages between £45 and £50. It has been said that new cabs are seldom to be met with; but this idea may arise from the fact that they do not long preserve the lustre and brilliancy of fresh varnish, especially in dirty weather. Three or four days will often suffice to make them look as if they had been used two or three months. The "age" of a cab is to be best judged like that of the horse—not exactly by its teeth, but by its inside fittings and cushions. The time a cab will last depends, in a great measure, on the excellence of its make, and the wear and tear to which it is subject. But in these respects all London cabs are pretty equal; and taking an average, it is found that they are fit to send out for hire for a period of six, seven, and eight years, if they are kept in good repair. At the end of that time they are mostly used up.

Cab manufacture in London is an important branch of trade; for on the first day of the present year there were as many as 6,017 cabs licensed at Somerset House, which would probably give 700 or 800 new ones a year. Hansoms being fast-travelling, and expressly suited for the impatient man of business, as well as pleasanter to travel in on a fine day, are in much greater demand than the old-fashioned four-wheelers. In the day-time, particularly, Hansoms are to be seen hurrying along, and there are several proprietors who do not keep the closed ones in their yards. What was said of the drivers holds good of their animals. There are hundreds of poor, wretched hacks, who ought to have been taken to the knackers' long since; while there are other really sound horses, who are worth £20 or £25. Not long since, one took the writer a fifty miles' journey in the country between two in the afternoon and nine at night, and then went back to his stable with a "go" of many more miles. That was a specimen of the higher grades of cab horses; but he never did any other work, and is not at all exceptional. They are generally about five or six years old when introduced to this life. London traffic, however, is of a very trying and exhausting nature; so that the Hansom horse usually closes his career in this line in about three years. Hansoms knock up much earlier than the four-wheelers, although they generally have a better class animal. In the shafts of the latter, a horse may last five years; when bought, their price varies from £8 to £10, and up to £20 and £25. When the animal has been fairly worked out in this line, he often departs for the country, there to be put to any quiet life, his late owner, perhaps, making £5 out of him. If a cab is only worked during the day, it wants two horses; but if it is going day and night, there must be a relay of three. According to this calculation, it may be estimated that there are some 15,000 cab-horses in the metropolitan district. Fortunately, it is for the interest of the master that he should keep them in pretty good condition, or they would get worked off their legs. A respectable owner stated that his weekly allowance per horse was a sack of oats, a truss and a half of hay, and a truss of straw, besides which there is a charge of, say, fourteen pence for shoeing.

When the driver comes in the morning, he finds everything ready for him to be off to do what he can. He has to pay the owner 11s. or 12s. a day. Sometimes he may not earn nearly so much, while on other occasions, by the help of the extra sixpences, he may clear a good profit. A driver is usually out thirteen or fifteen hours a day, from about nine o'clock in the morning until twelve o'clock or one o'clock the next. If he can, he changes his horse at four or five o'clock. To be perched on the box, or lounging on the cab rank all this time, is not the most comfortable mode of passing life, and keeps a man away from his home and children to an extent that is the reverse of beneficial. If, after he has paid the proprietor, he has 5s. or 6s. for himself, he has done pretty well. It is astonishing that but very few of even the best conducted fully comply with the regulations signed by Sir Richard Mayne. It is provided that a driver shall be fined 40s., or be imprisoned for a month if, when a person hires his cab, he does not hand him a printed ticket containing his number, &c. Now, this is no great hardship, and yet, whoever finds a man doing it? If a person takes a cab, and, in the hurry of business, leaves anything in it, he has the number in his possession, and the man can at once be found. In case of dispute, he is also furnished with the number, and so has not to take it when being abused. In a variety of ways it is a very useful clause, and one which ought to be enforced. There are many other clauses which persons may easily learn, if they will take the trouble to go into a police station, and ask to look at the book.

Of the 6,017 cabs licensed at Somerset House, 2,282 are what are called six-day, and 3,735 seven-day. At one time, there was a much larger number entered as seven-day; and it will be a good thing when they are still further decreased, so that the drivers may, at least, gather their families around them on one day in the seven, or have the opportunity of doing so.

There seems to be no trade organisation amongst the men, and most likely they would not derive much benefit, as "whips" are not at all scarce; for there are twice as many licensed men as there are cabs. The proprietor keeps the licence while the man works for him. The police magistrates, when drivers have misconducted themselves, do not issue summonses against the men, but against the masters, and it is for them to produce the offending party, or his licence, if the former won't appear, when a warrant soon compels him. As it is an uncertain kind of employment in the earnings, so men seldom get grey-headed in one master's service.

THE ELECTRIC MACHINE OF M. HOLTZ.

This new electric machine, devised a long time ago by M. Holtz, an amateur, of Berlin, recently constructed by M. Rühmkorff, and tried for the first time by the inventor, has astonished all who have seen it at work. In effect, although of small dimensions, it gives a greater quantity of electricity than the large ancient ones. Based upon the principle of the electrophorus, it is nothing but an electrophorus working in a rapid and continuous manner.

A disc of thin glass, with both faces exactly parallel, $15\frac{3}{4}$ inches in diameter, is fixed upon a horizontal axis, to which a rotatory motion is given by means of a winch and connecting-strap. In front of the revolving disc, and at a distance of $\frac{1}{8}$th to $\frac{1}{10}$ths of an inch, is placed another disc of glass a little larger in diameter ($17\frac{3}{4}$ in.), maintained in a fixed position by four rings, which slide on four horizontal bars of indurated caoutchouc. On this disc are two notches, wide, and about $4\frac{1}{2}$ inches deep; and at the side of each notch, on each face of the glass, an armature of paper, which does not extend as far as the edge, but only as far as the diameter of the other, or revolving disc; the exterior armatures are $2\frac{1}{2}$ inches broad, and the interior ones 1 inch only. M. Holtz calls a notch and an armature together *an element*.

Each interior armature has also two teeth of paper, which advance towards the middle of the notch. Opposite the revolving disc are horizontal metallic rods, to the free end of which conducting wires may be fixed; the other extremity, which is opposite the disc, carries a metal comb armed with teeth half an inch long. These combs are placed in a line with the armatures. In order to increase the isolating power of the discs of glass, it is well to coat them with shellac varnish.

It suffices now, in order that the armature may become immediately charged by influence, to approach one of them with any source of electricity: for example, a small plate of indurated caoutchouc, previously rubbed with catskin while the turning disc is in rotation. Suppose that one armature be electrified positively, it will re-act upon the turning disc, from which it will attract the negative fluid, the positive escaping by a first conductor. The negative fluid of the turning disc will be in part free and in part fixed by the positive fluid which accumulates on the exterior face of the fixed disc. The attractive influence of this last fluid is interrupted by the notch, and the negative set at liberty by this interruption passes to the teeth of the armature, the rest escaping by the second conductor. The armature is thus negatively charged, and its inductive action is added to that of armature; its fluid repels the negative fluid of the turning disc, on which accumulates the positive fluid, which flies to the points of armature, after having passed before the notch which cuts off the attraction of the opposite fluid. In this manner the armatures charge each other reciprocally, and act the part of condensers. At the same time, a continuous current is established in the wire which unites the conductors. The explosive distance with spherical electrodes is from one to four inches.

The new machine, which furnishes, with very little effort, an extraordinary quantity of tensional electricity, can be employed to produce a host of phenomena for which, hitherto, recourse was had to an inductive apparatus. It produces the stratified light in Geissler's tubes; its current is sufficient to give a sensible shock without a Leyden jar, to deviate the needle of the galvanometer, and to decompose water; brought to bear directly on the skin, it causes a stinging or burning sensation.

The effect, in this machine, is as if the air, confined between the two plates of glass and strongly ozonised by the electricity with which it was at first primed, caused the production at each instant, on the plate communicating with the conductors, of a new provision of positive electricity. M. Rühmkorff has noted that the resistance to the rotation increased considerably after the machine had commenced to give sparks. The production of the electricity required, in fact, some work. The same as in ordinary machines, it is the result of the transformation or the conversion of the motion of displacement into molecular movement.

Masting Ships.—An opportunity has been afforded those who take an interest in the improvement of naval architecture, of inspecting a model of Captain Cowper P. Coles' system of masting ships. The model was exhibited at the entrance to Lloyd's Captains' Room, Royal Exchange. It is called the triped system of masting, from the fact that the trunk of the mast, in addition to its own basis, is supported by two bearers, which gives it the appearance of a tripod. The object of this arrangement is, of course, to strengthen the bearing power of the mast, which it must accomplish in a very high degree. The other advantages of the tripod masts are, that in using them a saving is effected in the wear and tear of ropes, the ventilation of the ship is improved, its speed increased, and voyages thereby shortened, as vessels fitted with these masts are enabled to sail closer to the wind. At the same time, if the necessity should arise, these masts may be cut away as readily as wooden masts.

Mineral Resources of Turkey.—We feel real satisfaction in reporting that the Porte has at length taken a step which seems to indicate some serious intention of dealing with the vast, but hitherto almost useless mineral wealth of the country. A geological survey of the greater part of Roumelia has been decided upon with a view, it is to be presumed, of ascertaining with some degree of scientific accuracy and certainty the probable extent, character, and locality of the mineral deposits of this important half of the empire. With sound wisdom—for which, we believe, Ethem Pacha, the Minister of Public Works, is mainly to be credited—it has been decided to entrust the survey, not, as has hitherto been the practice, to some Hungarian, Polish, or *soi-disant* "engineer," but to a gentleman of high scientific reputation and great practical experience—Mr. Lennox, F.G.S., late of the Geological Survey of Jamaica. Both as a geologist and chemist this gentleman has already won acknowledged rank among our British *savans*, and his examination of the provinces to be visited will, at least, furnish the Government with data of the highest scientific value, be the use subsequently made of the information what it may.—*Levant Herald.*

Lessons in Mechanics.

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

THE celebrated M. Jourdain spoke prose during the greater part of his life without knowing that he did so; in like manner, many of our working mechanics are in the habit of applying the most exact principles of science, in the course of their daily occupations, without ever suspecting it. Long before the science of geology was invented, the practice of applying geological principles was common among canal engineers, quarrymen, and miners; and the laws of mechanics, hydraulics, and acoustics are in constant use, in our own day, among persons who do not know the names even of the sciences whose uses they are familiar with in daily life.

We propose, in the following series of papers, to lay down, in a popular though accurate form, the leading principles of the sciences most commonly applied to practice amongst ourselves, in the hope of establishing more intimate relations between those that are well acquainted with the theory of science, and those that earn their daily bread by the practical applications of that theory to practice.

It has been well observed, by Dr. Arbuthnot, that "it is no small impediment to the advancement of the arts, that speculative men and good mathematicians are unacquainted with their particular defects, and the several circumstances in them that render things *practicable* or *impracticable*;" but it is certainly no less an impediment to the progress of the arts, that those whose duty it is to carry them out into their minute and practical details, are unacquainted with the fundamental laws and principles of the sciences they are daily called upon to apply to practice.

Our object is to supply this defect of knowledge to the best of our ability, and to present to our readers the principles of the sciences reduced to their simplest forms, borrowing our illustrations of those principles from sources familiar to all, and therefore readily appreciated and understood.

We shall commence, without further preface, with Mechanics—the most important of the sciences used in the arts—and afterwards proceed to the consideration of the other sciences on which the material welfare of man is so largely dependent.

All the physical sciences make a direct appeal to some one or other of our senses, in the first instance, and afterwards depend for their development on the application of our intellect or reason to the facts originally supplied by the senses.

These senses were supposed by the ancients to be five in number—viz., smell, taste, touch, hearing, and seeing; to which list our modern philosophers have wisely added a sixth—viz., the muscular sense, or instinctive feeling of resistance when external force is applied. It is necessary, for the development of the respective senses of smell and taste, that external bodies should be directly applied to their several organs in the body; and that vibratory movements of air, or ether, should call forth the peculiar sensations of hearing and vision; while simple changes of temperature are sufficient to excite the sensation of touch in any part of the body endowed with nerve fibres of that peculiar sense.

In order, however, to call the *muscular sense* into play, it is necessary to apply *force* to some one of the muscles, with which the body of man and other animals is covered and protected.

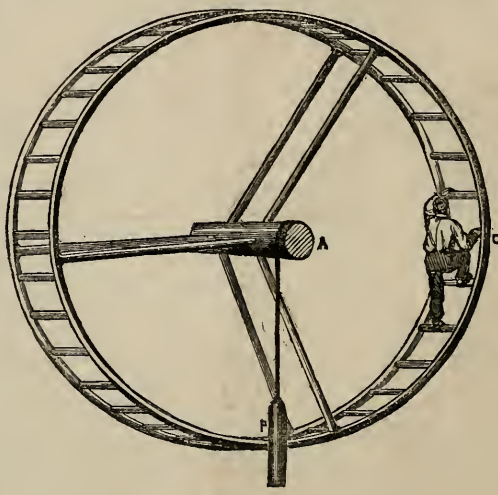
The science of mechanics is the science that investigates the laws of *force*, and applies them to the daily use of man. Of force itself we know nothing, but that it calls forth the resistance of our muscles, and gives us the peculiar sensation of some unknown thing outside ourselves opposing our motion.

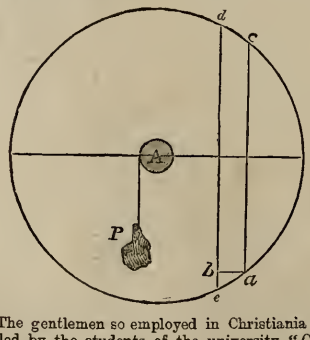
Instead, therefore, of commencing our study of mechanics with the abstract and difficult study of force, we shall begin with the study of some of the well-established effects of force, which are called laws, and leave the investigation of forces, in themselves, to the metaphysicians and mathematicians, to whom it more properly belongs.

The first and most important force we become conscious of is the attraction of the earth we inhabit, by virtue of which all bodies possess weight, and tend to approach the ground, unless prevented by some intervening obstacle, or by the exertion of an equal and opposite force. Hence, it follows that the simplest idea we can have of the effects of the exertion of force is derived from the effort to raise a body from the ground and increase its distance from it.

When we thus raise a body to a greater height than it was before, we are said to do *work*; and the amount of work done is measured by the product of the force exerted, or weight overcome, into the height through which it is lifted. Thus, if 2 tons be lifted through 5 feet, we say that the work done is 10 ft.-tons, or 2 tons multiplied by 5 feet; if 2,000 lb. be lifted through 46 feet, we say that the work done is $2,000 \times 46 = 92,000$ ft.-lbs.; and so on for other cases.

The oldest and simplest forms of machines are those in which work is done, by the efforts of men or other animals, to raise their own weight. The simplest manner in which this kind of work is done is shown in the above illustration, which represents a form of tread-wheel, still used in the city of Christiania, for the purpose of dredging the harbour. In that good city, when the father of a family refuses to maintain his family, instead of being sent to gaol, as in England, to be petted, fattened, and reformed, he is obliged to climb, "with patient step and slow," on the inner side of a dredge-wheel placed in a boat, and as his weight turns the wheel, a rope coiled round its axle pulls the dredge, and helps to clear the harbour.





The gentlemen so employed in Christiania are called by the students of the university "Conscript Fathers;" and as they land, day by day, wearied of their thankless toil, on the fish quay of the city, other epithets—more homely, if less classical—are freely bestowed upon them by the hard-handed and sturdy fishwives of the town. We have replaced the dredge, in the sketch, by a rope sustaining a simple weight, according to the magnitude of which the wheel revolves more quickly or more slowly.

In the accompanying diagram, if *a*, *e* represent two successive positions of the man's foot after having taken an upward step, and if *a c*, *e d* be vertical lines drawn through those successive positions, it is plain that in making a single step upwards the "Conscript Father" has raised his body through the height *e b*; hence the work done by him in making that step is measured by his weight multiplied by *e b*. This work done, if there were supposed to be no friction, or loss of force, in the working of the wheel, would be exactly equal to the work done, as measured by the weight *P* lifted through the height through which the axle A turns while the man's foot descends from *a* to *c*. No matter, therefore, what be the weight *P*, or the diameter of the axle A, the work done by the weight in ascending will be exactly equal to the work done by the man in descending from *a* to *c*. At the next step, he lifts his body again, through the height *e b*, in making the step from *e* to *a*, and is in a condition, by so doing, to cause the weight *P* to be again lifted through the same height as before.

The same mode of applying the labour of man to do work, by raising his own body, is employed in English gaols (or, at least, was until a recent date), in the form of the tread-wheel, which is so well known that no illustration of its action is necessary.

In this machine, the prisoners are placed in a row, on the outer side of the wheel, on a level with its axle, and hold on to a bar placed above their heads, while they climb up the paddles of the wheel, which is itself, by means of machinery attached to the axle, made to pump water, to grind meal, or do other work required in the economy of the prison.

I do not consider the English tread-wheel to be so honest a mode of employing criminal labour as the dredge-wheel of Christiania; for, in the former mode of climbing, as the hands are placed on a fixed bar, it is possible for a cunning convict to support a great part of his weight by his arms, and by moving his legs in time with the other culprits, to appear to do much work, while he really does little. During the course of some experiments made by me some time ago, I had occasion to work with a gang of criminals on the tread-wheel, and was kindly informed by an "old bird," or "Canary," as he was called (whose good office I had secured by a donation of "Limerick twist"), that the best place on the wheel was that next the wall, by leaning against which with the arm and shoulder it was possible to do very little work without being noticed by the superintendent. In the Norwegian tread-wheel, on the contrary, the whole weight of the "Conscript Father," as he climbs, is necessarily employed in turning the wheel, as there are no external objects, as the bar or wall, on which it can be partially supported.

When the English tread-wheel is honestly used, it is found to be as useful a machine as the Norwegian; as a man of average weight (150 lb.), employed on the English wheel, can raise 3,897 lbs. through a foot in one minute; while, on the Norwegian wheel, the same man can raise 3,637 lbs. through a foot in one minute. If the labour be continued for eight hours a day, supposed divided into equal intervals of labour and rest, the total day's work, estimated in foot-tons, is—

Day's Work on English Tread-wheel	417 ft.-tons.
Day's Work on Norwegian Tread-wheel	390 ,,

If a man be employed raising his own weight on a ladder, it is found that he produces 4,222 ft.-lbs. of work in one minute, which, on the supposition of eight hours' employment, half rest and half labour, amounts to the following:—

Day's Work in raising the Labourer's own Weight on a Ladder . . .	452 ft.-tons.

The most economical use that can be made of the labour of man consists in using him to raise his own weight, for in other descriptions of work much of the labour is expended in moving the body from place to place, without accomplishing any useful or productive work. Gangs of labourers have been thus employed on some of the older waterworks, climbing either a ladder or steep staircase, and then walking in upon a movable platform, which descends in consequence

of their weight, lifting at the same time a corresponding quantity of water. This mode of employing human labour has been long since abandoned in every civilised country, as it was found that man might be more usefully, though not so economically employed, by choosing forms of labour in which his intelligence was called into play, and in which he ceased to be used as a mere beast of burden.

It has been found, from carefully conducted experiments, that the work done in raising the weight of the labourer's body on a steep staircase is the same as that done by mounting a ladder, viz., 4,222 ft.-lb. per minute.

(To be continued.)

A SHETLAND SHAWL.

It was made of the purest and finest wool,
As fine as silk, and as soft and cool;
It was pearly white, of that cloud-like hue
Which has a shadowy tinge of blue,
And brought by the good ship, miles and miles,
From the distant shores of the Shetland Isles.

And in it were woven, here and there,
The golden threads of a maiden's hair,
As the wanton wind, with tosses and twirls,
Blew in and out of her floating curls,
While her busy fingers swiftly drew
The ivory needle through and through.

The warm sun flashed on the brilliant dyes
Of the purple and golden butterflies,
And the drowsy bees, with a changeless tune,
Hummed in the perfumed air of June,
As the gossamer fabric, fair to view,
Under the maiden's fingers grew.

The shadows of tender thought arise
In the tranquil depths of her dreamy eyes,
And her blushing cheek bears the first impress
Of the spirit-awakening consciousness,
Like the rose when it bursts, in a single hour,
From the folded bud to the perfect flower.

Many a tremulous hope and care,
Many a loving wish and prayer,
With the blissful dreams of one who stood
At the golden gate of womanhood,
The little maiden's tireless hands
Wove in and out of the shining strands.

The buds that burst in an April sun
Had seen the wonderful shawl begun;
It was finished, and folded up with pride,
When the vintage purpled the mountain side;
And smiles made light in the violet eyes,
At the thought of a lover's pleased surprise.

The spider hung from the budding thorn
His baseless web when the shawl was worn,
And the cobwebs, silvered by the dew,
With the morning sunshine breaking through,
The maiden's toil might well recall,
In the vanished year on the Shetland shawl.

For the rose had died in the autumn showers,
That bloomed in the summer's golden hours,
And the shining tissue of hopes and dreams,
With misty glories and rainbow gleams
Woven within and out, was one
Like the slender thread by the spider spun.

As fresh and as pure as the sad young face,
The snowy shawl, with its clinging grace,
Seems a fitting veil for a form so fair;
But who would think what a tale of care,
Of love, and grief, and faith, might all
Be folded up in a Shetland shawl?

Ventilation of Sewers.—Mr. Bazalgette, the engineer, having been authorised by the Metropolitan Board of Works to make experiments for testing the value of charcoal, or other deodorising ventilators, has made a report, in which he states:—It is necessary that all sewers should have free ventilation into the open air, or the gases generated in them escape through the house drains into the houses, where they become dangerous and offensive; and the experience obtained from the numerous experiments and investigations which have been instituted lead to the conclusion that most of the modes of ventilation referred to may, under favourable circumstances, be applied with advantage in particular cases; but that the most efficacious and most universally applicable mode of preventing the escape of noxious gases is so to construct the sewers that a continuous flow shall be kept up in them, and to provide them with a sufficiently copious supply of water, that the decomposing matter within them shall be diluted and instantaneously removed, and not allowed to settle and ferment in the sewers. Much improvement has already been effected in the ventilation of the London sewers by the abolition of tide-locked and stagnant sewers, and much more may yet be accomplished by the introduction of a more copious supply of water—a *desideratum* greatly needed for the necessities and comfort of the inhabitants of the metropolis.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

STREET LAMPS.

One of the most unsightly objects in our streets is the common gas-lamp, and the tall slender iron post by which it is supported. Had it been intended to familiarise the eye with forms of ugli-

ness, and thus to debase the public taste, a more efficient mode could not have been desired. A Polynesian savage would have produced something more tasteful, even if more rude, than this—one of the many emblems of our modern civilisation. The old fallacy, that "cheapness is opposed to beauty," lurks at the bottom of the feeling which has tolerated so long these eyesores to the cultivated mind; but when we consider how the commonest articles of pottery or metal-ware made by such peoples as the Etruscans, the Greeks, or the Romans, form the leading models from which our most tasteful and costly articles are designed, it becomes evident that if we wish to promote a taste for art, we must accustom the eyes of the multitude to objects of artistic beauty. But is this done by us? We fear not; at any rate, not to the extent necessary. Yet no one can fail to behold, so far as the metropolis and our leading cities and towns are concerned, traces of a growing feeling in favour of an increased use of art, even in the commonest objects of every-day life. Our public buildings, mercantile palaces, and not a few private residences, are being constructed in a style of taste and splendour utterly unknown to our forefathers. These improvements have led to others, among which may be included more graceful and artistic forms of lamps and lamp-posts, such as that represented by us in our illustration. The shape of the lamp is more effective for purposes of street illumination than that in common use, the light being reflected downwards as much as possible, instead of being lost above, where it is not wanted. The form of the post itself, without losing its lightness of appearance, is suggestive of strength and solidity, and affords an admirable example of what might be done in the way of improving the shape of this, one of the most common of our common things.

Coin, from the Crucible to the Press.

It is intended, in a short series of papers, to explain the various processes through which ingots of gold and silver pass at Her Majesty's Mint, ere they issue from its portals in the form of current coin of the realm, and to give some explanations, also, as to the conversion of bronze bars into the same useful shape. We are aware that there are in existence several works which profess to describe accurately the operations carried on in the national money manufactory, but we also know that they fall short, in several important particulars, of the standard of exactitude which should be the aim of the descriptive writer.

Without entering at present into the history of minting in England, it may be stated that, like many other arts, it has passed through every gradation of improvement, commencing with primitive hand-labour, and ending with machinery of the most perfect kind. Up to the year 1810, the English Mint existed within the walls of the Tower of London. Queen Mary concentrated the small provincial establishments for the production of coin—which, previous to her reign, existed in various localities—into one comparatively large factory, in that fortress, and there it remained till the period named. The mechanical arrangements of the Royal Mint in the Tower were of a very rude kind, and the rolling-mills were propelled to the last by the application of the power, not of steam, but of horses, whilst the presses were worked by manual labour. The inadequacy of the establishment for its purpose had been manifested towards the close of the eighteenth century (1788-9), when Messrs. Boulton and Watt had supplemented its exertions by the production of very large quantities of copper coin, in a very short time, and by the aid of vastly improved mechanical agencies, the invention of Matthew Boulton.

At the commencement of the present century the demand for coin, consequent upon the increasing commercial activity of the time, the development of manufacturing industry, and other causes, was wondrously augmented, and it became clear that a new mint, with improved appliances and fitments, must be constructed if that demand was to be adequately responded to. The question came before Parliament, and after much discussion, money was voted, and Messrs. Boulton and Watt, and Mr. Rennie were called upon to give plans for steam-engines and machinery of sufficient power and magnitude to produce, if needed, a million of coins per week. A site was selected, Mr. Smirke was appointed architect for the buildings, and very soon the Royal Mint, of Tower Hill, came into existence, its total cost being a quarter of a million sterling.

It was during the year 1810 that the first coinage of pence took place, and it was conducted under the auspices of the Company of Moneyers, a corporate body, who claimed the right of coining all the moneys of the state, and dated their origin from the period of the Saxon Heptarchy.* The

* The Corporation of Moneyers ceased to exist in 1851, after a Royal Commission had reported that their charter of privileges was a myth, and the members were permitted to retire with the solace of large pensions for their loss of office.

machinery, thanks to the eminent men who constructed it, proved to be most efficient; and after sixty years of more or less constant action, much of it remains in as sound a condition as when it was first erected. It has poured forth streams of gold, silver, and bronze coin into the channels of general circulation representing an aggregate value of many hundreds of millions sterling, and at this moment its rate of production averages forty millions of pieces of all denominations per annum.

With so much of introductory matter—summarised as far as possible—let us proceed to explanations of the *modus operandi* as exhibited in the daily proceedings of the Mint; and as gold is the most valuable material dealt with, it shall have precedence. The Bank of England furnishes its sister establishment with refined ingots, the value of each of which is £800; and since the Bank is a very extensive customer, it seldom sends forward less than a million's worth of those precious wedges during any one coinage. They reach the Mint by instalments, however, technically known as importations (fourteen of which constitute a million sterling), in boxes placed in ordinary stage wagons, and guarded on their way by clerks and porters from the Bank. Time was, indeed, when a sergeant's guard was necessary for the safe conduct of these argosies through the streets of London. Happily, our lot is cast in brighter days, and the people, better treated, are all the better for their treatment. On the arrival of an "importation," of the coming of which due notice has been given by the Threadneedle Street authorities, the Mint gates are opened by the police, always on duty there, and the gold passed on to the back of the principal building, where is situated the Assay Office. The iron-bound chest is then opened, and the ingots are transferred from it to the department just named. It is in this small sanctum, indeed, that the very first operations of gold and silver coining are performed. A small piece of gold is, in fact, cut from each ingot by force of hammer and chisel, and this in the presence of a bank official. As the ingots are all stamped with distinctive letters, so are the cuttings from them placed in papers lettered correspondingly. The whole are then removed to the scales of the Mint office, and accurately weighed by the deputy-master or his representative. The weight charged to the Mint is compared with the actual weight, and a receipt for the latter is dispatched to the "Governor and Company of the Bank of England." The ingots themselves are next deposited in a stronghold, and the cuttings are carried off by the assayer. It is his province, indeed, to test chemically the exact character of the metal supplied, and to report to the master of the Mint the degree of fineness of each ingot. A copy of the assayer's report is sent to the Bank for comparison with the results of the previously-taken assay at that place. Should the two reports agree—as nine hundred and ninety-nine times in a thousand they do—news of the fact is carried back to Tower Hill, and straightway the ingots are released from their prison-house, and in omnibus trucks conveyed per tramway to

THE MELTING-HOUSE,

where the first step taken is to re-weigh them, and to record their weight in the journal of the department. The assayer's report, indicative of the respective degrees of fineness of each ingot, is now consulted, and sufficient alloy, the purest copper, is apportioned to accompany the ingots into the crucibles, and bring the whole, when molten, to the standard point. It may be as well to state here that standard gold consists of 22 parts of pure gold, and 2 parts of alloy; or, more exactly, of 91·66 per cent. of pure gold, and 8·33 per cent. of copper, in 100 parts. Formerly silver was used as an alloy for gold intended to be coined; but ample experience has proved that an admixture of copper is better—the resulting money becomes harder, and more capable of withstanding the wear and tear of circulation.

In the gold melting-room of the Mint there are seven furnaces arranged in a line, and placed at a convenient height from the floor, the ash-pits being below its level. Crucibles, composed of a mixture of plumbago and Stourbridge clay, are used for holding the metal, and into each of these are placed six of the ingots, together with the amount of alloy necessary for reducing them to standard, and a small quantity in addition, in order to compensate for a loss of alloy which will occur during a subsequent process, to be by-and-by described. Before being so charged, the crucibles are placed on saucers of the same material as themselves in their respective furnaces, the saucers preserving them at the base from the action of cold air. The crucibles are then surmounted by muffle rings of plumbago and clay, and covered by lids of the same composition. The whole are then surrounded with fuel, which, as it burns up from below, heats the crucibles very gradually, and thus averts the risk of their fracture by too sudden expansion. It is not long before the heat of the furnace reduces the metal to a fluid state, when it is well stirred with a plumbago-ended rod, so as to incorporate the alloy intimately with the gold. In a molten state the metal is allowed to remain until it assumes a temperature at which it flows readily, and is likely to form solid bars when poured into moulds. Meantime the moulds themselves are prepared for the reception of the golden streams which they are destined to receive. They are composed of a series of planed cast-iron bars, accurately fitted together, and standing vertically on a carriage, running freely, when required, along a miniature railway. The bars are rebated from end to end, so as to leave a space between each pair for the reception of the metal, and the whole are braced tightly in the frame by set screws. The first set of moulds is now advanced to the front of the range of furnaces, and the first crucible, raised by a simple contrivance, is lifted from its bed of fire, and seated for a moment on an iron platform. The workman clasps it with a pair of tongs, the weight of the whole being partly sustained by a hook and chain pendent from the roof. Carefully and steadily he advances the tip of the crucible to the mouth of a mould, and pours a portion of its contents down the throat of the latter. Soon it is filled, and the crucible advanced to a second, a third, and a fourth mould, which are speedily charged also. The empty vessel is returned to its old position, to receive a fresh batch of ingots, &c., and another loaded one is brought to the mould. Thus the processes of melting and casting go on throughout the day, and not unfrequently a quarter of a million's worth is dealt with between "early morning and dewy eve" at the Mint. It may be observed that a small portion of charcoal is put into each crucible with the gold and its baser companion, in order to reduce any oxide which may contaminate the latter. The charcoal naturally floats when the metals become fluid, and it then preserves the alloy from the action of the oxygen in the surrounding atmosphere. Care is taken in the pouring to prevent any portions of the charcoal passing into the moulds.

(To be continued.)

Seeing the Queen.

"It's five years since the poor Queen opened Parliament," said Nelly, the other evening, as we sat at supper. "Don't you think you could spare an hour or two on Tuesday, Tom? I should so like to see her! It's not the show I want to see—the soldiers, and the carriages, or the rich dresses—but just the dear Queen's face. She has had a hard trouble, Tom, and women—at least those who have good husbands—warm towards her. It will not be the fatigue that will try her strength, but memory."

Nelly's eyes glistened a little, and I noticed that her hand trembled.

"We will go if you like," I said, and then I changed the subject, for I guessed what thoughts were rising in her mind; and, for my own part, though I have struggled to nerve myself for what may some day be inevitable, I shrink from the idea of that chair before me ever being vacant.

I had no difficulty in getting leave for a few hours, and Nelly and I set off for a walk westward. There were hundreds, even thousands, going in the same direction; and I was sorry to see many men whom I know pushing along in their dirty clothes, with unwashed faces, and making a call or two for half-pints on the way. The Strand was crowded with sight-seers—men, women, and children, all eager for the show, and not thinking of the squeezing they would have to endure. I do wonder women will venture into crowds with babies in their arms. It was as much as Nelly and I could do to make our way along, and we were often jostled by rude young fellows, who seemed to find a great deal of amusement in making other people uncomfortable.

We made our way into the Park by the little gate in Spring Gardens, and a real crush we encountered in doing so. Two or three policemen did their best to ease the pressure, but without much effect. "It's as good as the play, especially the squeezing," remarked one young fellow, who seemed to have some gallery-door experience. When we did reach the Park at last, we found ourselves in a crowd indeed. The broad, open area, extending from Spring Gardens to the Parade, was nearly filled with people; and as we drew nearer the line of route, marked out by Life Guardsmen, resplendent in the bright mid-day sunshine, the crowd increased. It was impossible to obtain anything like a seeing position, for the route was lined with a mass of men, women, and children, about ten deep, behind whom were the broad fringe of outsiders pushing and squeezing, vainly looking for openings in the human barrier. In the garden of the Admiralty were raised seats covered with red cloth, and occupied by ladies and children. Every window of the Horse Guards was filled, and on the roof the red jackets of soldiers mixed with the darker dresses of other spectators. Very shaky forms and tables were offered for the public use at sixpence a head; the railings round the trees were loaded with men and boys clinging on despite of nails and spikes; and the hanging branches of trees were seized by London boys, who, with monkey-like agility, hauled themselves up to the stronger branches, on which they sat astride, unmercifully "chaffing" their less fortunately placed or less active companions.

Up the Mall the throng was even denser, being compressed into narrower limits. I was watching, with some amusement, mounted policemen galloping up and down the line, the great Commissioner himself, in cocked hat; busy superintendents; the officer of the day, attended by his trumpeter in full state dress, and perfectly impassive to the popular demand to "blow up;" when Nelly suddenly called out, "Oh, the darlings, there they are!" I wondered for a moment who the "darlings" were; but following the direction of her eyes, I saw at the upper windows of Marlborough House, two children, in the care of smart nursemaids. They were doing just what children generally do under such circumstances—laughing, jumping, and pulling at the cord of the window-blind; and, indeed, the fact that they were little princes—sons of the Prince of Wales and his beautiful princess—did not appear to weigh oppressively on their minds. "Bless them too," I said to myself; "and bless all little children, for the love they bring into a world which wants love."

As carriage after carriage rolled past, bearing sundry court officials, the excitement became intense. Of course, there were plenty of people who declared the Queen was in each of them, and, equally of course, a great many more who contradicted, and knew all about the real state of the case. One authoritative female, who seemed to labour under an idea that the procession to open Parliament and the Lord Mayor's show were identical, settled the matter by saying contemptuously, "The Queen, indeed! Not she. They's the Sheriffs; the Lord Mayor will come presently." I suppose she was disappointed at not seeing the men in armour.

"She wouldn't come at all if she didn't want to ask for some money for some of the young uns," snarled a dirty, seedy-looking man. "I don't want to see the Queen, unless she'll give me a pint of half-and-half for looking at her."

But he pushed and struggled as if he did want to see her; and, indeed, what else did he come for, I wonder? Why some men should take so much trouble to assure others (who can easily guess as much) that they have no ambition beyond a pint of beer, I never could make out. It is not to their credit, and they might do their best to hide the ugly fact.

A good hearty shout for the Prince and Princess of Wales, another for one of the younger princes, and then came the escort of Blues and the brilliant beef-eaters, and the eight cream-coloured horses, with riders in gold-embroidered jackets and caps, and drawing a handsome private carriage, in which is seated the Queen herself. We caught but a brief glimpse of the royal face, but that was enough to set us shouting. The miserable grumblers forgot their cantankerousness; women stood on tiptoes; children were hoisted to shoulders; everybody cheered; everybody, gentle and simple—they were not all working men and their wives who mingled in the crowd that day—

did their best to give a real welcome to the stricken Lady, who once more came among her people as the "Queen of innumerable realms."

Letters from Lancashire, by a Lancashire Lad.

III.—CO-OPERATION IN ROSSENDALE.

The story of the Rochdale Pioneers has been told so often, and so recently, that it must be familiar to all the readers of this Journal. I purpose illustrating the same truths by telling a story, which is not quite so well known, and which, I think, is equally important. It must be as interesting to study Co-operation in Rossendale as in Rochdale, and the student may derive the same lessons from the history of the movement in one place as in the other.

The district of which I speak is one of the most attractive, in its physical aspects, in Lancashire, and a ramble in and about it would be sufficient to enable a visitor from the south to amend his notions of the general appearance of our cotton manufacturing towns. A long valley, in some parts extremely narrow, and at times exhibiting much both of the beautiful and the grand, contains the series of towns grouped together under the common designation of Rossendale. The time was when this valley was so filled with forest trees, that for a distance of four miles the squirrel might flit about without once touching ground. Now, the trees are gone, and the river that watered their roots flows by mill and town; and whilst the eye is occupied by noting the very frequent signs of industry, the ear is filled by the hum of steam-moved machinery.

Bacup is the principal town in the valley, and in it, and the other Rossendale towns, the operatives have exhibited as much of sturdy self-help as has been exhibited by workers elsewhere. It is to be noted that there is here a larger proportion of Lancashire-born people, and a less admixture of Irish, in the population than may be found in the great towns in the northern and southern portions of the county. As in many parts of our manufacturing districts, so here, improvement in sanitary arrangements has not kept pace with the extension of employment and commerce. The Public Works Act—one of the wisest measures ever passed by the House of Commons—has enabled our local authorities so to amend the sanitary condition of the towns, as to considerably increase the comfort of the inhabitants, and, I believe, to add somewhat to the length of their lives.

Just when the spring of 1863 was merging into summer, I was recovering from a very severe illness, and so soon as I was able to go about as a convalescent, I pleased myself by taking a walk through Rossendale. Leaving the train at Rawtenstall, I walked along leisurely through Newchurch and Stacksteads to Bacup. At different stages of my journey I made a pause, calling upon persons whose names I had obtained beforehand. Of these persons I inquired about the growth of Co-operation in the district, and about the effect which the distress, which was then very severe, might produce. My senses, made more than ordinarily delicate by my recent confinement, were pleased to ecstacy with the evanescent glories of flitting clouds, and hill and dale had a new loveliness added to them by the rapid alternations of light and shade which were flung upon them by sun and cloud. The associations of that May-day ramble were such as to impress upon my memory with more than ordinary distinctness the many facts, sad and pleasant, which I obtained.

My information respecting the origin and growth of Co-operation was sufficient to add considerably to the interest which I then felt in the movement. I smiled at some of the diverting incidents which marked its early stages, and, as the story went on, my mind was occupied earnestly in pondering upon the results which were yet to be obtained from the working of a scheme which had even then been so successful. The little thing which had its first practical development amid the extreme suffering and the social turbulence of the Chartist and Corn-law times, was now so grown, that I obtained an account of some twelve or thirteen co-operative manufacturing concerns, having together an enrolled capital of no less than £670,000, and a subscribed capital of nearly half that amount. Remembering that several of the men with whom I conversed, and who were now managers of mills, or independent of any labour, had been poor mill hands in 1842, and that they owed their improved condition mainly to their share in the co-operative movement, I thought then that it would be well if working men in other parts knew the story, and were induced to go and do likewise.

I have frequently thought that those who have had most to say about our working classes, their condition, and the means for its amelioration, have laid too little stress upon the dulness and the stultifying effect of most of the circumstances which have environed them. Critics have written about Burns and his poetry, without giving a single word to what was terribly prosaic in his life. In saying that it is not because of their poverty, but in spite of it, that poetry remains a power amongst the toiling classes, I believe I am but repeating what Mr. Gerald Massey has already said. It is enough to make one shudder at times to consider the many chances there were of his life being little better than brutish, to one chance of its being of a higher character. Refinement of feeling, the power to perceive and appreciate what is beautiful and noble in the shows and forms of Nature, and in imitative and creative art; an interest in, and a comprehension of, the social and political growth of our nation; a knowledge of that literature which contains the wisdom and wit of many bards and many sages—these things cannot fairly be expected in beings whose early lives were spent in unwholesome toil, and in the midst, frequently, of debasing associates. Franklin's rhymed proverb—

> "Early to bed and early to rise
> Makes a man healthy, wealthy, and wise,"

could be said but in mockery to thousands whose toil began too early and continued too late. To be but as their fathers were, inured to hard toil, and too often finding relaxation and pleasure whilst glued to the taproom bench—to be called up from bed so early that the workshop was reached before the head was quite emptied of the fantastic dreams which had filled it in sleep, and to return home late at night, more like a somnambulist than a waking child—such prospects, and such condition, were not likely to inspire either a love of knowledge, or of anything better than what was actually seen to be attainable. And when times were bad there was too little work, where before there had been too much: want stepped in to punish those whom labour had punished before; and somehow it might seem that to toil and sleep, or to play and starve, must in turns be the lot of the labourer. To-day it is difficult to conceive what was frequently the condition and life of children engaged in manufactures before the passing of the Factory Acts. That it was bad—so bad as to justify legislative interference—cannot now be denied.

It was under the harsh conditions which I have attempted thus briefly to describe, that the first co-operators were born and reared. They were heirs, too, to something besides poverty. There had grown up, with the factory system, such an antagonism between class and class, as added considerably to the bitterness of life. That antagonism was increased as the changes of machinery displaced numbers of workmen, and was increased still more by the wickedness of those who, in the fight between Protectionists and the Anti-Corn Law League, sought to make political capital out of the sufferings of an almost maddened multitude. In the manufacturing districts, Chartism arrayed itself with Protection to fight against the League, and League meetings were opposed by Chartists.

Any one who had visited Rossendale in the Chartist times, would have found that political passion was as much roused there as in other places. At Bacup the Chartist operatives had an attic, which they dignified as a meeting-room, and there they met to talk about national as well as local affairs. Many of them were out of work; others had but little work; and even those who were fully employed found that both purse and cupboard were but scantily filled. On idle days some of these men would take long walks on the hills, and then their talk would turn to subjects more immediately important to them than the doings of Parliament, or the effect of the monster petition. Could they do better with the little they possessed? Was it possible that they could mend their own private affairs easier, and at less cost, than they seemed likely to mend affairs that were imperial? Some of these men had a little knowledge of certain socialistic schemes, and thought they saw something in them. One Monday night a meeting was held in the Bacup attic, at which these poor men resolved that they would club together their small funds, and, instead of buying food from retail dealers, they would purchase at wholesale prices, and distribute the provisions, and divide the profits amongst themselves. That was the start of Co-operation in Rossendale. Their first purchase was to the extent of a few shillings; they were a long time before they could muster a pound at once. They could not afford to pay for carriage, so they had to fetch what was bought, from Rochdale or Todmorden, on what they themselves would call "Shanks's pony." It is difficult for me to lay my pen down without expressing, in such words as I may have, my sense of the self-denial and the practical wisdom of these men. If Mr. Carlyle could but have seen them in that Bacup attic dividing the food which two or three of them had carried several miles, we might have had a picture in his "Chartism" which ages to come could not dim.

Working Men's Clubs and Sanitary Improvement.

A sphere of usefulness for Working Men's Clubs, inferior to none that has been entered upon by them, is about being brought under the notice of these associations by the Central Union. A letter by Dr. Aldis having appeared in a daily paper, suggesting the formation of clubs amongst working men for protection against those causes of disease in and about dwellings which are comprised in the existence of nuisances of various kinds—in bad water-supply and sewerage, and in defective arrangement and construction, the executive committee of the council of the union placed themselves in communication with the writer of the letter, with a view to making use of the machinery of existing clubs for an object so thoroughly accordant with one of the primary objects of these societies—viz., mutual help for social benefit. In consequence, Dr. Aldis attended, by special invitation, on the 1st of February, at the monthly tea-meeting of secretaries of clubs and members of the council of the union, to explain his views. There were present of the council, Edward Hall, Esq., and Mr. Bainbridge, besides the organising director, the Rev. Henry Solly; the secretary, Miss Horsbrugh; and Mr. W. H. Robinson, who is acting as secretary to a working men's company now in course of formation for providing improved dwellings. Several of the secretaries present were able to add to Dr. Aldis's statements particulars of cases in which individuals had been powerless to get removed nuisances of the most dangerous character. Fear of being turned out of a house or place of employment, and knowledge of the difficulty of procuring another residence or situation, kept the individual resident or workman from complaining, even though he might know that his health was being impaired day by day. It was admitted, however, that much had yet to be done in disseminating amongst working men a knowledge of the causes of disease, and of the different steps to be taken for their removal; and it was unanimously agreed that the Council of the Union, in co-operation with the Ladies' Sanitary Association (which is devoted to this good work) and with Dr. Aldis, might adopt measures towards the correction of this latter evil, as well as towards the object generally. The course to be immediately taken by the Union is now arranged; and as each of the secretaries present at the meeting at once adopted a suggestion that he should incite his own club to the organisation of means, and to individual exertion, we may hope that the movement of Working Men's Clubs in the way of sanitary improvement has already commenced. Mr. Twining, with his accustomed benevolence, has promised his assistance; and we shall doubtless have more to say of a subject which may well be deemed paramount in importance to working men and their families, as well as to Working Men's Clubs. It was ultimately agreed that the Ladies' Sanitary Association should be invited to print a short paper containing the needful instructions, for circulation among the managers and members of the various Working Men's Clubs in the kingdom. The remainder of the evening was devoted to the consideration of several practical questions.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

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The Parks of Nature.

London is actually undergoing the process of being built up. If something is not done to prevent further enclosures of open spaces, the metropolis will be in danger of becoming a solid city. The only current of air in London may be said to be made by the rush of vehicles down Fleet Street and Cheapside. A fresh breeze, or the flavour of it, is supposed to come in with the Putney omnibuses. No wonder attention has been drawn to this ossification of the metropolis. A few days ago an important meeting was held in the Mansion House, London, convened there by concurrence of the Lord Mayor, for the purpose of considering how the commons of the metropolis could be preserved for the use and recreation of the people. The Lord Mayor showed his interest in the proceedings by presiding on the occasion. The Lord Bishop of London, Professor Huxley, Mr. John Stuart Mill, M.P., Viscount Milton, M.P., Mr. Thomas Hughes, M.P., and many other socially eminent persons, Members of Parliament, merchants, ecclesiastics, and gentlemen, are associated as the "Commons Preservation Society." Their object is to preserve the commons for the use of the people. The society defines a common to be the "parks of Nature."

For years there has existed in London an Anti-Enclosure Association. It had a secretary, and a few honest but obscure workers upon its committee. Yearly it raised its voice, to which few listened; and working men despaired of ever seeing the cause of open commons taken up as it is now, by persons who have the influence which will enable them to force attention to the subject.

Several City merchants spoke with a loudness and energy of voice which must have satisfied Dr. Lankester, who was on the platform, of the soundness of the City lungs, as well as assured the audience of the earnestness of the speakers. Mr. Scott, the City Chamberlain, showed by curious statistics, that, taking the area of the metropolis at sixteen miles from Charing Cross—which is the Metropolitan Police district—the population of London, in 1801, ranged at equal distances, would stand each man twenty-one yards from his neighbour. In 1851 each person would have stood fourteen yards apart. At present, in 1866, there would only be nine yards between each person; and in fifty years hence, supposing the population to go on increasing at its present rate, and to keep within the sixteen miles area, there will only be standing-room for each person. As in a deluge people climb to the highest pinnacles for breathing space, so, should Mr. Chamberlain Scott's state of things occur, the Londoners will be found clinging to the chimneys for furtive mouthfuls, or lungfuls, of fresh air. As the population now stands it is clear that the metropolitans need all the commons they have.

The splendid commons, or parks of Nature, about London, which have been enclosed, are, it is to be feared, lost for ever. There are a class of persons, known as common-sweaters, who begin by small encroachments—they clip the edges of waste lands, and plead afterwards the rights of appropriation and occupation, from which the poor can never dislodge them.

This new society will be able to command great influence. They propose to obtain parliamentary powers to treat with lords of the manors for the surrender of their rights. Mr. Alcock has generously volunteered to surrender his rights over 800 or more acres, near Croydon. The church authorities of St. Paul's Cathedral are disposed to do the same, where they hold manor rights. The Crown will, no doubt, follow the example. This is a question of the privileges and comforts of the poor, as Mr. Charles Buxton showed, who need commons for the resort of their wives and families, more than the wealthy classes, who can make annual trips to the sea-coasts or the Continent. Mr. Hughes, M.P., said boldly, that he would take the "sentimental side," as it might be called, and contend with an eminent author (whom he did not name) that the love of country in any man was in proportion to the space in it over which he had free and pleasant right of recreation.

Nothing is more uncertain in law than the rights of lords of manors. Ask them to stop a nuisance or remove a dust-heap, and they reply they have no power; but if a speculating builder casts his dangerous eyes over the whole area, the lord of the manor frequently discovers that he has power, or assumes that he has, to let in the masons and exclude a whole population from grounds over which their ancestors trod uninterrupted since the days of the Norman Conqueror. It is only justice to say that many lords of manors are as anxious as any friends of the people that an equitable settlement of manor rights should be made. As matters at present stand, he who steals a goose from off a common is in well-known danger of consequences of the most uncomfortable description; while he who steals the common from the goose is unassailable and unmolestable. The poor, who suffer most by the loss of the common, are in a state of despairing helplessness as to its recovery. We congratulate the working classes on the powerful friends who have now entered the field on their behalf. The day has come—it has been long delayed—when the people have friends. This anti-enclosure movement once successful in the metropolis, will end in saving the parks of Nature of the whole country.

Taste at the Fishmongers' Hall.

A public company has shown public taste, which in itself is notable; but in the case of the Fishmongers, the company has not only shown good taste, it has set an example in the decoration of their official Hall which may have important influence on a great branch of manufactures.

The London visitor who remembers London Bridge has, no doubt, noted, on the right-hand corner of the bridge on leaving the City, a dull, smoke-begrimed, yet somewhat stately, building, in the Grecian style of art. This is the well-known Fishmongers' Hall. Its position, however, is admirable. Of the eighty-two City companies, the Fishmongers' Hall, situated on the banks of a tidal river, alone commands a view of that special element, of whose living wealth this ancient company have hereditary conservancy.

Owing to railway extension, and other artificial and natural developments of the great and increasing fish trade, the old function of the company—that of regulating the profit on the sale of fish—has fallen into abeyance. The "fish inquest"—another of the offices of the company—is still kept up; and two "fish meters" attend the Billingsgate market and inspect the fish, as to its being in a fit state to be sold for human food. It will be to the advantage of the public if this office is strictly discharged, and the company might usefully extend their functions in this direction.

Leonardo da Vinci, the famous Florentine painter, who lived 400 years ago, and whose work on painting has never been equalled to this day, advises students to make a great many studies from nature, with a view to perfect the hand and enrich the mind; but he also urges them not to use these studies for the purpose of original compositions. He insists that fresh studies should always be made of any great picture they may be engaged upon. His meaning is clear. He was fearful that, out of indolence, those to whom he addressed himself might use studies of faces or forms, or landscape backgrounds, not strictly to the purpose before them. As we should say of an orator addicted to a commonplace-book, and who used illustrations because he had them at hand, though not relevant to the argument; whence patchiness, discursiveness, confusion of thought, and defect of force arise.

The example set by the Fishmongers' Company cannot be too widely followed. They required carpets and blinds. The usual course pursued in such cases is to send for an upholsterer, to measure staircases, rooms, and windows, and bring patterns such as he may have in stock. Ninety-nine times in the hundred the worthy upholsterer has nothing suitable, and the owner is constrained to accept the nearest approach he can find to what he wants. The Fishmongers' Company took the right course. They sent for a first-rate designer, and commissioned him to design carpets and blinds in strict harmony with their noble Hall. The result unconsciously presents an illustration of what Leonardo da Vinci described as the success of art.

The moral is, that England, as a manufacturing nation, having to compete with the entire world, the faculty of English invention, and the highest order of taste, require to be cultivated, stimulated, and encouraged, in order that we may maintain a rivalry, if not supremacy.

The carpets at the Fishmongers' Hall have been manufactured of a material known as Axminster pile, by the Messrs. Templeton, of Glasgow. So admirably do they harmonise with the rooms in which they are placed, that they have the effect of a great picture. On reaching the top of the grand staircase, the eyes encounter a perfect sea of crimson and amber, russet and deep madder brown, relieved by lines of blue. Each room is made a place of beauty, delicacy, and loveliness, contrasting strongly with the grim bustle of the road and the river, which the guests look down upon from the window. In what may be called the light-blue room, from the predominance of that colour in it—a room in which ladies must delight, and where, we presume on some festive occasion, ladies are intended to assemble—the sole ornament on the chimney-piece is the long, uncomfortable-looking dagger, with which Sir Richard Walworth, one of the prime wardens of this guild, and at that time Lord Mayor, killed Wat Tyler. This dagger is one of the glories of the guild, which has no bait of hook or other device for fish killing, only this one memorial of Tyler killing. The guild, however, has liberal traditions. It entertained Lord Erskine, Henry Brougham, Joseph Hume, Richard Cobden, Sir Rowland Hill, and General Garibaldi, whose autograph is one of the framed decorations of their entrance room. But the Fishmongers' Guild never placed itself more on a level, or, indeed, in advance of the time, than by calling into their service a distinguished decorator, to give unity of ornamentation to their mansion; and in setting the example of bringing carpetry to the aid of decorative art, and causing the manufacture of special designs, thus opening or encouraging, and certainly tending to elevate, this interesting branch of manufacture. The Owen Jones carpets at the Fishmongers' Hall are now a new thing to see in London. When Cellinis step into the workshops where precious metals are designed, or a Wedgwood calls in the aid of the sculptor, or a Pugin conceives and carries out, not only the erection of a mansion, but its appropriate furniture and ornamentation to every detail—glories of art begin to fill a land, and every workman has a higher place in the ranks of skill who is engaged in executing such designs.

Mortgage on Industry.—Our national debt, in round numbers, is $3,000,000,000, which, divided among 30,000,000 of people, is about 100 dollars a head; the State debt is about $51,000,000, which, divided among 4,000,000 of people, is nearly 13 dollars per head; and our city debt is $41,000,000, or about 41 dollars per head. This makes a total of 154 dollars for each man, woman, and child, in the city of New York. As not over one person in six is a labourer or creator of wealth, it follows that each actual producer is saddled with a debt of 1,000 dollars, upon which he must pay interest for the rest of his life. The prospect is not a pleasant one for the labouring classes.—*New York World.*

THE DRILLING MACHINE IN USE IN THE MONT CENIS TUNNEL.

Diamond Drilling Machine,

EMPLOYED IN EXCAVATING THE MONT CENIS TUNNEL.

The simplest method of drilling rocks consists in employing a bar of iron as the boring tool. Every time a blow is struck on the end of this tool care is taken to turn it partly round, and to withdraw the fragments from the hole made as frequently as possible. This process is a very slow one. The depth of a hole made during a day with a bar will vary from 12 to 32 inches, according to the hardness of the rock.

M. Leschot has conceived the idea of substituting for the ordinary iron bars, for boring hard rocks, rotary tools acting like an annular conical head, in which the steel teeth are replaced by diamonds.

The apparatus consists principally of an iron tube, at the extremity of which is a steel ring, in which black diamonds are set, projecting from the surface—some within, some without, and others a little in advance of the front edge. A rotary motion is given to this tube, with a greater or lesser pressure against the rock, which is broken up and bored wherever the diamonds touch it. An india-rubber pipe, or even the iron tube containing the perforator, carries a stream of water of sufficient force to wash away the fragments of rock which remain in the interior of the tube, as witnesses that they are easily removed.

With Leschot's borer, a hole of 2-10ths of an inch in diameter, and nearly $3\frac{1}{2}$ in. in depth, can be made in a hard rock in the space of an hour. It is employed in the Mont Cenis Tunnel, and other similar works.

The cost of this tool is not, as might be supposed, any obstacle to its employment, for the only use that has hitherto been made of the opaque black diamond is, in a state of powder, to polish transparent diamonds. It is very little worn in boring rocks. When no longer available for that purpose, it is withdrawn from the steel ring in which it is set, and may be sold at a slight reduction on its original cost, proportionate to the reduction in weight. A steel ring mounted with black diamonds, which will serve to make holes of $1\frac{1}{2}$ in. in diameter, costs from four to five pounds.

The Leschot borer is now being employed in boring into a talcose rock of extreme hardness in the tunnel at Port Vendres, in the south of France. Before employing this tool, two miners could, with much difficulty, only make a hole of $1\frac{3}{4}$ in. in depth in two hours and a half; the same work is performed by the diamond borer in twenty-one minutes. A dozen such holes are made in a day. The expenditure of water is less than six pints per second, the fall about 100 ft. The water motor is the invention of M. Perret, civil engineer; it is very simple in construction, and has replaced steam and compressed air as a motive power in this work.

The Textile Manufactures of England.

BY WILLIAM ROSSITER, FELLOW OF THE WORKING MEN'S COLLEGE.

I.—INTRODUCTION.

In the preface to his history, Stow remarks that every five hundred years a great change had taken place in the English nation. In saying this, Stow was not twisting facts to suit any pretty theory of his own; nor making too much of small changes because they happened near particular times. The changes of which he speaks were the cardinal ones of our history. The beginning of the history of England is coincident with the beginning of the history of Christianity; for then its exact locality was first made known to the world, and it was brought into the general current of history.

Five hundred years afterwards the ancient inhabitants were driven from their homes, the rude

ancestors of the present generation of Englishmen taking possession of the land, and making it their own.

After another five centuries came another race of conquerors, crushing for a time their Saxon brethren, but eventually uniting with them to form one people, in whom the rude strength and vigour of the Saxon, polished by the vivacity and grace of the Norman, should form the groundwork of the national spirit.

Another period, and Saxon and Norman, now alike Englishmen, with a common language and common national feeling, achieve for themselves a national faith. It is at this time that the history of England, as the history of a full-grown nation, taking its part in the world's work, fairly commences.

In the first of these periods, when the Roman ruled the land, it was fitted to be the dwelling-place of a civilised people: then roads were made, houses built, agriculture extended farther in than the coast, and mining first became a little worthy the name.

In the next, the Saxon period, our ancestors, who came as pirates, remained to become settled inhabitants of a land they called their own. They were preparing to become a nation worthy of a history, and laying the foundations of the English language and the English nation.

In the third period the Norman came, receiving strength where he gave grace and polish. Now was built, on the Saxon foundation, the nation which, at the close of this period, took that place amongst the nations of the world which less than half another five hundred years sufficed to make so glorious.

If the English people have thus a character of their own, so, also, has their country. The history of English manufactures and commerce is the history of a land and of a people worthy of each other—a land of boundless riches and fertility, worked and tilled by a people of steady energy and unwavering perseverance. The story how England has risen to her present greatness as a manufacturing and a commercial nation, long and varied as it is, is but the repetition of the same theme—the overcoming of obstacles by steady and long-continued exertions.

At the beginning of the story, we sell the wool off our sheep's back to foreign weavers, and then buy it back again, giving them our corn and tin for weaving it; but at the end of the story, we not only use up our own wool, and buy more of other nations, but we buy, in addition, four-fifths of the entire cotton crop of the whole world, and by means of machinery, unequalled for extent and power, make it into clothing for every nation on earth.

The chief textile manufactures of England are those of wool, of silk, and of cotton. The first is by far the oldest, the last by far the greatest. The first dates back even before the Roman time, the last scarce 200 years. The great steps of these manufactures are the following:—

WOOLLEN.

Dates back to before the Roman conquest.

A.D.

1100.—Settlement of a body of Flemish weavers in England.
1322.—The first mill in Manchester.
1331.—Edward III. invites a second body of Flemish weavers.
1337.—Prohibition of foreign-made cloth.
1614.—Invention of West of England mixture cloth.
1650.—Export of raw wool prohibited.
1668.—The finest wool still made by foreigners.
1780.—About this time machinery first applied to woollen manufacture.

SILK.

1363.—First mention of silk, in an Act of Parliament.
1585.—A great number of silk weavers settle in England, on Antwerp being plundered by the Spaniards.
1595.—Stocking-frame invented.
1685.—Great numbers of French weavers settle in England, chiefly Protestants exiled from France by Louis XIV.
1719.—First silk mill in England.
1765.—Foreign silk prohibited from entering England.
1826.—Importation of foreign silk allowed, upon payment of heavy duties.

COTTON.

1641.—Cotton first mentioned as being spun in England.
1767.—Invention of the spinning-jenny.
1769.—Invention of the spinning-frame.
1773.—Goods first made entirely of cotton.
1775.—Invention of the mule-jenny spinning-machine.
1787.—Invention of the power-loom for weaving.
1791.—First importation of American cotton.

These, the cardinal events of each manufacture, show the difficulties that our ancestors had to overcome—how they required foreign teachers, and thought they required protective prohibitions; also how, by hard work, they did overcome all their difficulties, and when they had learnt to spin and weave well themselves, made iron spinners and weavers, which should do these things even quicker and better still.

The Britons spun wool, as they mined for tin and copper, in a manner as rude as it was limited. Under the Romans they did both better. The Saxons did them first worse, then better than the Britons. The Norman kings encouraged the spinners and weavers as well as they knew how. In 1100 a great number of Flemish weavers, washed out of their home by an inundation, came to England for a new home. They could fight as well as weave, were strong as dexterous, and Henry I. placed them at Carlisle, where they might spin, and weave, and fight the Scotch; afterwards they were removed to the west, about Gloucester, as an advanced guard against the Welsh marauders.

In 1331 Edward III., who had married a Flemish princess, invited over a fresh body of weavers, whom he settled at York and other northern towns—where their descendants are now—encouraging them in every way he could both by bounties and prohibitions of other goods. The manufacture increased in quantity and improved in quality, but for the next three hundred years the best cloth was still made abroad. In 1614 the method of mixing two qualities of wool was first tried in Gloucestershire, whence it derived the name of West of England mixture. This was a decided improvement; but it was not until machinery was applied to both spinning and weaving wool that the manufacture became at all equal to foreign work.

The silk manufacture, unlike the wool, is of foreign origin, having been first introduced into England about the end of the fourteenth century. The earliest mention of it known is found in an Act of Parliament of 1363. In 1585 the town of Antwerp, then the great emporium of European commerce, was besieged and plundered by the Spanish troops. Great numbers of the inhabitants left it, and a large body of the silk-weavers came over to England; and in 1685, exactly a century afterwards, a still greater number of weavers, chiefly Protestants, came over from France, upon Louis XIV. revoking the Edict of Nantes, by which he had previously granted toleration to his Protestant subjects. Both these immigrations, but especially the latter, did very much to improve the silk manufactures of England. From this time until 1826 silk woven abroad was prohibited from entering England, and the manufacture suffered the usual fate of protected trades—making but little progress until these prohibitions were removed. The chief improvements of the silk manufacture have been made of recent years, since it has felt the good of free intercourse with other nations.

The cotton trade, the most gigantic, is, also, the youngest. It was not until the middle of the seventeenth century that cotton was at all known in England. It was then brought in very small quantities from Cyprus. The manufacture made but little progress, comparatively, until the invention of the spinning-jenny, in 1767, increased the quantity, and that of the spinning-frame, in 1769, improved the quality, that could be spun. In 1773, owing to these improvements, goods were for the first time made entirely of cotton, instead of mixed cotton and linen. The invention of the mule-jenny spinning-machine, in 1775, made a still further improvement in both quantity and quality, combining in itself the advantages of both the preceding inventions. More cotton was now spun than could be woven: attention was thus directed to improving the existing weaving machinery, and in 1787 the power-loom placed the weaving power on a level with the spinning. In 1791 the first cargo of American cotton was received, and good raw material was now as plentiful as the power to use it.

From this date the cotton trade has steadily increased with a rapidity quite surprising, until the reasons for it are considered. The manufacture has all the elements of success. An abundant supply of easily-worked raw material, unequalled power in working it, and a manufactured article eminently suitable for cheap and comfortable clothing and for a thousand other purposes, in great demand in every civilised country, are ample data to account for even the stupendous magnitude of our cotton manufacture.

All the great inventions, the enormous capitals, and gigantic factories upon which the manufacturing prosperity is founded, are things of the last hundred years; but for the causes of which these are but the results, we must trace back the story both of England's people, and of England itself. We must go back even to the times when the land had no human inhabitants.

In the far-off times, when a few fishes and a reptile or two formed the highest order of life upon the earth, the trees that in their present form work our gigantic systems of machinery, and enable our railways and steam-ships to do their work, were seen spreading their giant boughs to the light of heaven. We spin and weave our wool and cotton, and our ships carry us far over the ocean, by burning the coal which grew as trees upon this fair island ages before Cæsar and his legions trod its shore.

*Poems. By Matthias Barr.**

The social and intellectual progress of the industrial classes is abundantly typified by the general character of the poetry produced by such men as Ebenezer Elliott, Gerald Massey, Samuel Bamford, John Clare, and the crowd of other children of toil who have glorified labour with the bright crown of song. We no longer picture to ourselves the poet as a poor and miserable author, pining in a Grub Street attic, or passing his days in the Marshalsea prison. No, nothing of this. Our modern poet is, in many cases, one of those sturdy-minded and thoughtful artisans who, instead of fretting themselves because the path of life is not always strewn with roses, boldly take things as they are, and sensibly determine to make the best of them. Such a man is Matthias Barr. True, he does not tell us he is a working man, but the fact is revealed in every page of his little volume. None but a working man could have sung as Matthias Barr has done of working-class life. He is a reader, too, or he would not have told us of his love for books; how they "come with the sunshine of love in their looks to gladden and brighten" him after the toils of the day. Like Gerald Massey, the intensity of his sympathy with the sufferings of the poor has led him into an occasional bitterness of expression; but the cloud soon passes away, and we find the poet singing—as the true working man poet loves to sing—of his household joys and happiness. He loves the little ones—what true poet does not?—and to one tiny darling, who possesses the silver key of his heart, he thus sings:—

LITTLE THINGS.

Little eyes, little eyes,
Twinkling, star-like, on the sea
Of all our troubles, all our sadness,
Heaven-born lights are ye.

Little feet, little feet,
Falling on our humble floor,
Bringing faith, and hope, and gladness,
Where doubt was before.

Little hands, little hands,
Softly, meekly, clasped in prayer;
Pleading at the gates of heaven
For the loved ones there.

Little heart, little heart,
Beating out the golden hours,
Coining all that life hath given
Into buds and flowers.

Little thoughts, little thoughts,
Working in that little brain;
Restless, endless thoughts a-sowing;
Seeds for joy or pain.

How I love ye! how I love ye!
Tongue can never tell how much!
Life is doubly worth the knowing,
When we live for such.

But Matthias Barr is not so selfish in his domestic felicity as to forget his duty to his fellow-toilers, who oftimes need so sadly a word of kindly cheer as they press forward in the fierce and unceasing battle of life. For them he has honest and glowing songs of hope and cheer, such as the following:—

* "Poems." By Matthias Barr. London: Longman and Co. 1866.

GIVE ME YOUR HAND.

Come, give me your hand, sir, my friend and my brother,
If honest, why, sure, that's enough;
One hand, if it's true, is as good as another,
No matter how brawny or rough.

Tho' it toil for a living at hedges or ditches,
Or make for its owner a name,
Or fold in its grasp all the dainties of riches,
If honest, I love it the same.

Not less in the sight of his Heavenly Maker
Is he who must toil for his bread;
Not more in the sight of the mute undertaker
Is majesty, shrouded and dead.

Let none of us jeeringly scoff at his neighbour,
Or mock at his lowly birth.
We are all of us God's; let us earnestly labour
To better this suffering earth.

With this, we take our leave of Matthias Barr, trusting that he may live to produce many more such volumes as that which elicited our fullest meed of approbation.

The London Association of Foremen Engineers.

WE have pleasure in placing before our readers some details of the rise, progress, and present position of this society. Like many other institutions now in flourishing and useful existence, the Association of Foremen Engineers owes its creation and establishment to the active minds and energetic labours of a few men.

On certain evenings of each week, during the winter of 1851-2, a knot of about half-a-dozen intelligent-looking men might have been seen occupying a "box" in the public room of a coffee-house in the bustling locality of Clerkenwell, and they were generally engaged in earnest conversation. They met by appointment, and the subject which occupied their attention was a suggestion made by one of their number—Mr. George Sheaves—for the formation of a Benevolent and Scientific institution, to promote the material and moral interests of the class to which they all belonged—that of foremen engineers. It was felt rather acutely that that class was, to a considerable extent, in an isolated and, therefore, unsatisfactory position. In the factory they occupied an intermediate place, and were required to be on a friendly footing both with masters and men, without favouring either unduly. Out of the factory they found it inexpedient, if not impossible, to hold free communion with either their superiors or subordinates, whilst they had no bond of union or tie of friendship among themselves: hence the inconvenience and awkwardness of their own social condition.

Foremen engineers, however, are trained to meet and, if possible, to overcome difficulties, moral as well as practical. Exertion and self-reliance, humanly speaking, are their inheritance—bequeathed by earlier engineers who have achieved peaceful triumphs, and left deep "footprints on the sands of time"—and in the workshop they find ample opportunities for the employment of their share of the property. The primary difficulty which had to be encountered at the Clerkenwell meetings was less mechanical than moral. It was no less than the hostility of employers to the realisation of their project, and this important point was the subject of many an evening's anxious deliberation in the coffee-room box. The foremen had determined by resolution that an association should be formed. They named a chairman and a secretary, and at once proceeded to frame a code of rules for the government of the embryo society. The problem next to be solved was, how to avoid offence to the heads of engineering firms, and yet to advance their own order morally and intellectually by association, and this was by no means a question easy of solution. The very idea of a combination among any class of employés was at that period—when strikes were rife, and disastrous in their effects—simply hateful to employers. In their eyes the really innocent meetings of the foremen assumed an alarming aspect, and in some instances dismissal was threatened as the punishment of those who attended them.

Conscious of the injustice of the masters' suspicions, and certain that as they were unjust they would be shortlived, the founders of the association persevered in their work. By the month of March, 1852, they completed a draft copy of rules for the management of the association, and shortly afterwards the rules were printed and circulated. The enactments were of a nature to disarm opposition, for they were entirely of a benevolent and scientific character. Employers were by one of the regulations invited to become honorary members, with the privilege of attending every meeting, and the discussion of the politics of trade was expressly and authoritatively forbidden under any and all circumstances. Interference in questions relating to arrangements between master and servant was interdicted on pain of expulsion; and, in short, every possible ground of apprehension on the part of employers was completely disposed of—as it was imagined.

The association was now fairly launched, and the coffee-house frequenters were no longer to be met at the accustomed spot. We give their names, as a necessary and just accompaniment to this slight historical *resumé* of their persistent and successful labours. They were—George Sheaves, Thomas Allison, John Briggs, John Ellis, James Hosken, W. Ross, J. Marrow, George Tillot, and William Keyte.

Advancing now to a later period in the annals of the society—the year 1859—and we find that not much improvement in a numerical sense had then been made. The number of ordinary members was twenty-two, and scarcely a single engineering employer had enlisted in its ranks. Its meetings were nevertheless held, as they are now, on the evening of the first Saturday in each month, and those who attended them speak highly of the practical discussions which then took place. Papers, too, were occasionally read, and the association had taken something like a firm standing among its scientific fellows in the metropolis. It had not outlived as yet the fears of master engineers, but it had its own innate vitality; its rules had worked well, and it reckoned in its ranks representatives of some of the principal London firms.

At this juncture its first chairman, Mr. Sheaves, and who had held that post hitherto, died—to the intense regret of the associated foremen. In February of the same year (1859), Mr. Joseph Newton, of Her Majesty's Mint, was unanimously elected as chairman. This gentleman, who had for some years previously taken an active part in the proceedings of the association, now redoubled his exertions, and devoted himself, in the first instance, to the dispersion of those clouds of not unnatural prejudice which had obscured the vision of employers. Personally he invited them to attend the monthly gatherings; he caused reports of the meetings to appear in the scientific press; superintended a revision of the original rules; and, in short, may be said to have infused new life into the institution. The consequences soon became apparent: employers came in, foremen who had timidly held aloof followed their example; the "Transactions" increased in interest, gained a wider range of readers, and the harbour of prosperity was more nearly approached than it had ever been before. Larger rooms were taken, and, at length, a well-known employer, Mr. Henry Grissell, consented to preside at an anniversary festival of the society, held at Radley's Hotel, in 1864. Mr. Grissell, on this occasion, was supported by other gentlemen of eminence in the engineering world, and the turning-point between the struggle for and the achievement of success was passed. Last year, Mr. John Penn, C.E., occupied the chair at the annual dinner, and 250 members and friends of the society supported him. On Saturday next, the 17th inst., Mr. John R. Ravenhill, C.E., will succeed Mr. Penn, and there can be no doubt that, in the future, the anniversaries will be furnished with chairmen of nearly equal eminence.

The number of members at present connected with the London Association of Foremen Engineers is 145; the amount of money in hand for meeting current expenditure is £438; and the master engineers of London have subscribed no less than £600 as a Superannuation fund for aged and necessitous foremen, being members of the society. This may be surely termed a satisfactory state of things, as it is a legitimate reward for exertions which have from the first had but one object—that of rendering service both to foremen engineers and their masters. It only remains to summarise, for the advantage of the readers of the WORKING MAN—many of whom we have reason to know are engineers—the rules of the association to which we have at some length referred.

The qualification for ordinary membership is that of having held the post of principal foreman or principal draughtsman in any branch of the engineering trade for two years previous to candidature. The amount of subscription after election is nine shillings per quarter, and there is an entrance fee of one guinea. The advantages are those of attending all meetings, receiving one guinea per week for sixteen weeks, if so long unemployed, and that of having the co-operation of all members in obtaining new employment. Honorary members are admitted on payment of five guineas in one sum, or of one guinea per annum. Engineering employers are especially eligible for this class, but other gentlemen are admissible, and among those at present so attached are the editors of nearly all the scientific publications in London.

At the last annual meeting, held on the 6th of January, Mr. Joseph Newton was, for the eighth time, re-elected to the office of president of the society, although he made a strong effort to escape from the trammels of office. Mr. David Walker (of Messrs. Maudslay, Sons, and Field's) is the efficient secretary.

We cannot do better than conclude this sketch in the words of the preface to the society's rules:—"The association has no secrets, but courts complete publicity. . . . It essays to assist its members in faithfully and creditably filling the important posts confided to them, to relieve them when under the pressure of incidental difficulties, and to afford assistance to their relatives when death comes and makes their homes desolate." With such benevolent aims and objects before it, we can but wish the Association of Foremen Engineers God speed.

THE COAL TRADE OF PITTSBURGH.

WE find, in the *America Reporter*, some interesting particulars respecting the development of the coal trade at Pittsburgh, in the State of Pennsylvania. What with coal and petroleum, the Quaker State possesses enormous mineral wealth.

The extent of the bituminous coal-field by which Pittsburgh is surrounded is 15,000 square miles, equal to 8,600,000 acres. The amount of coal contained in that area it is difficult to estimate, from want of reliable information of the number and size of the veins of coal to be found at the same depth below the surface, reached in English and French mines. The copper seam, rating it at an average of eight feet in thickness, is estimated to contain 1,497,464,000,000 bushels, or 53,516,430,000 tons of coals, which, at two dollars per ton, or a little over seven cents per bushel, would be worth 107,032,860,000 dollars.

The following furnishes an exhibit of the whole coal trade of Pittsburgh:—

Number of Collieries	100
Hands employed	6,423
Number of Cars	21,254
Value of Coal Lands (dollars)	7,519,708
Value of Houses (dollars)	1,267,000
Value of Improvements other than Houses (dollars)	1,344,300
Value of Cars, Tools, &c. (dollars)	354,604
Value of Live Stock (dollars)	208,175
Population of the Collieries	30,960
Coal mined in 1864 (bushels)	48,462,966
Of which was consumed in Pittsburgh (bush)	18,921,399
Of which was exported by Ohio River (bush)	29,541,567

In the number above given of collieries and hands employed, several small mines in the neighbourhood of the city are not included.

Things Talked About.

IT is somewhat curious to find two men of high character, generous impulses, and large experience arriving at directly opposite conclusions on a matter of fact which each has investigated, and which is directly connected with a cause of which each is a time-honoured and able champion; yet such is the case with the Earl of Shaftesbury and the Rev. Lord Sidney Godolphin Osborne—the famous "S. G. O." of the *Times*. The case of John Cross, the Dorsetshire peasant, attracted, as is well known, great attention to the condition of the Dorsetshire labourer generally, which, for years past, has been proverbially wretched. The Earl of Shaftesbury, the lord-lieutenant of the county, denies that the labourer is anything like so miserably paid, fed, and housed as is popularly believed; and asserts, as a matter within his own knowledge, and sustained by the evidence of extensive personal inquiries, that he is really in a better condition than the labourer in many other counties, and even in some of the manufacturing districts. "S. G. O." maintains the contrary. He also has been among the Dorsetshire peasantry, has seen and heard for himself, and emphatically denies the earl's assertions, which have, he says, "astounded him." We shall know something more of the subject before long. Perhaps some of the "bold peasantry, their country's pride," will be able to relate their own history.

The prosperity of a country is generally indicated by the marriage rate. According to that test, we ought to be doing well; for the quarterly return of the Registrar-General tells us that in the three months ending September, 1865, weddings were more rife than they were in the previous summer, or in the summer of any year since registration began. This implies that the great body of the people were prosperous in Yorkshire, the woollen trade of which had greatly increased, owing to the rise in the price of cotton. In London, there were a thousand more marriages than in the preceding quarter. There is another aspect in which this fact may be viewed. Not only does an increase of marriages show advanced prosperity, but also a probable increase of morality and happiness.

If the demand for some of our textile fabrics is advancing, and Yorkshire, for example, still maintains its high reputation, it is rather discouraging to hear that in other and most important branches of industry England is not holding her own. Yet, at a recent meeting of the Birmingham Chamber of Commerce, the Vice-President, Mr. J. S. Wright, did not hesitate to say—"He believed at the present moment in Birmingham, which used annually a million pounds sterling of gold and silver, and 1,000 tons of copper, giving half a million sterling, and had nearly 400,000 inhabitants dependent for support upon the superior metals, the number of persons engaged in those trades who studied chemistry with a view to making themselves better manufacturers in metals did not exceed ten, nor had it exceeded that number for the last quarter of a century. In this matter it was necessary to turn over a new leaf if they would maintain their position." We think so too. Unless they do, French and German manufacturers, who know how to ally science with art, will carry off the honours. Bir-

mingham workmen who would be something more than mere machines, should take the matter to heart, and obtain for themselves, by self-culture and research, the honours of successful labour. A consequence of the want of proper chemical knowledge was mentioned by the same speaker:—"It was true at the present time that a large sum of money was wasted annually—he set it down at £20,000—by the metals in solution which rolled down our kennels, and the acids used in the manufacture." "Waste" is every day becoming a stranger word to the scientific mind, which is learning to utilise almost every product. Birmingham manufacturers little think what they are throwing away.

Sanitary reformers may derive a valuable illustration of the cost of dirt from Marseilles. The late outbreak of cholera in that town—due, beyond all question, to the wretched condition of the town in all matters pertaining to sanitary necessities—was only subdued by the desperate expedient of lighting enormous fires in the street, with the probability of setting fire to the houses. As it is, the fires so damaged the pavement, that the repairs will cost about £2,500. A correspondent remarks, "Had that sum been expended in sanitary precautions before the cholera broke out, many persons now rotting in their coffins might have still been walking about on the uninjured pavement."

The efforts to obtain better house accommodation for working Londoners are progressing unflaggingly. There has been a meeting at the Metropolitan Club, at which the Right Hon. W. F. Cowper, M.P. (Commissioner of Works and Buildings), the Marquis of Townsend, Lord Ebury, and many other influential persons attended. A scheme was submitted, and generally approved, for the formation of a company, with a capital of £100,000, in £10 shares, for the erection of dwellings in flats, and also small houses in the suburbs. The management is to be in the hands of trustees and directors, elected by the shareholders; so that capitalists and working men would be represented, and guarantee obtained for proper financial management, at the same time that the peculiar requirements of the tenants would be considered. Some of the features of a building society, facilitating the purchase of the tenements by the occupiers, are also incorporated in the plan, which appears to deserve support. Only in some such manner, we are convinced, can the great problem of properly housing the working classes be solved.

A meeting has been held at Lambeth for the purpose of advocating the opening of the national collections and museums in the evening. The danger from fire has been hitherto the great objection; but South Kensington is open, and safe—why not the British Museum? Surely proper precautions are not beyond the reach of science? The reading-room, for instance, might be lighted from the exterior.

Mr. Alexander Kay, insurance broker, who died very recently, has, we understand, bequeathed the munificent sum of £10,000 for the purchase and maintenance of a public park for Kilmarnock, and also £6,000 to build and endow in the same town two public schools for working men, where a "good plain practical education" will be given. The deceased gentleman was born in Kilmarnock.

France is making a step towards realising a most desirable object—a universal maritime language. The "Commercial Code of Signals," just issued by the Minister of Marine, will enable English and French sailors to communicate with each other. Other countries are anxious to adopt the code; and the most valuable results may ensue.

The military store labourers are asking for an advance of wages, and Professor Fawcett, M.P., and Mr. John Locke, M.P. for Southwark, have undertaken to urge the claim on the Government.

We have before us a programme of the Islington Youths' Institute, in the Richmond Road. The members are between the ages of thirteen and nineteen, and for a subscription of 4d. a week, or 4s. for the term of four months, they enjoy the privilege of a reading-room, lending library, educational classes, lectures, and other advantages. Amusement is not forgotten, but, on the contrary, plentifully provided for. Examinations are instituted, and prizes given. The honorary secretary, in his report, shows the real wants of lads, many of them engaged in business, with little of the influences of home. He writes:—"Their peculiar wants are evening recreation, companionship, an entertaining but healthy literature, useful instruction, and a strong guiding influence to lead them onward and upward socially and morally. Their dangers are, the long evenings consequent upon early closing, the unrestraint they are allowed at home, the temptations of the streets and of their time of life, and a little money at the bottom of their pockets." The larger institutions are mostly above the means of lads; besides which, they feel *young* in the reading-room and classes. The Youths' Institute appears to meet the case almost exactly.

The Mont Cenis Railway will extend from St. Michel, in Savoy, to Susa, in Piedmont, a distance of 48 miles, and will overcome the elevation at that point of the Alps by the use of the centre-rail system, the practicability of which was first proved by trials on the Cromford and High Peak Railway two years ago. This link of 48 miles will complete the railway route from Calais to Brindisi on the Adriatic.

The Soldering Blowpipe.

Until within the last few years, the soldering lamp or blowpipe was an instrument of very rude construction. An oil lamp, with a large wick, into which the air from the lungs was blown through a bent tube, was the instrument generally met with in workshops. At the present time, ingenious and important modifications of the blowpipe are adopted; two of the most important of which we will now describe.

The *aërohydric blowpipe*, burning a mixture of atmospheric air and hydrogen gas, and giving a

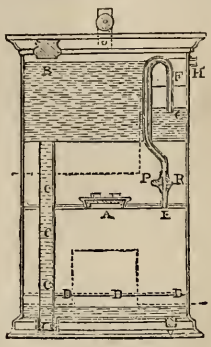

Fig. 1.

vivid and intense flame, as manageable as a pencil in the hand, is employed for soldering platinum with gold, for brazing copper and brass, and especially for the *autogenous* soldering of lead, without any alloy of tin. It is extensively employed in the latter application in manufactories of sulphuric acid and other chemical products.

The two-gallon apparatus is that generally employed. It is composed of a gas generator, a bellows, and a double cock, connecting with india-rubber tubing, and a brass burner forming a blowpipe. The generator intended to supply the hydrogen, and decomposing water by means of zinc, or iron, and sulphuric acid, is represented in Fig. 1. It is constructed on the principle of the instantaneous hydrogen lamp invented by Gay Lussac. The lower portion is filled with granulated zinc, through the aperture, A, which closes with an air-tight cover. Through the aperture, B, in the upper portion of the generator, a mixture of sulphuric acid and water is introduced. This mixture descends through the pipe, C C C, rises in the lower portion until the air introduced while putting in the zinc, and which is compressed in consequence of finding no aperture to escape by, is in equilibrium with the column of liquid. As the zinc lies on a false bottom, D D, placed at exactly the height the liquid retained by the compressed air must reach, it happens that the zinc at first remains protected from contact with the acidulated mixture. In this state the generator is said to be *charged*. When it is required to produce gas and put the apparatus in action, the cock, E (and those which correspond with it), is opened, so as to allow the compressed air to escape. While the air is escaping the liquid rises, comes into contact with the zinc, and hydrogen gas is generated. The apparatus is completely purged of air in a moment. The gas passing through E (the cock, E, being open) escapes through G into the safety-chamber, F, where it passes through a thin layer of water previously introduced through the aperture, H, by means of a small funnel. If it be desired to stop the production of gas, the cock, E, is closed; the gas which continues to be formed during a few moments, in consequence of the contact of the zinc with the acid liquid finding no escape, becomes compressed, presses upon the liquid, which rises through the pipe, C C C, into the upper portion until its level in the lower portion is below the false bottom, D D. Then there is no longer any contact between the zinc and the liquid, and, consequently, no further liberation of gas. To put the apparatus in operation, the cock, E, is opened, the compressed gas escapes, the liquid ascends, reaches the zinc, and produces gas in proportion to the quantity consumed.

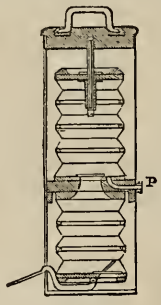

Fig. 2.

Fig. 2 represents the bellows, which, worked by a pedal, supplies the requisite atmospheric air.

When the end of an india-rubber tube, L, is attached to the aperture, H, of the generator, and the end, S, to the air-bellows at P, the apparatus (Fig. 3) is ready for working. The workman takes hold of the brass pipe, N N N, then opens the cock, E, and the corresponding cock, M. The gas which escapes through the burner, O, being lighted, gives at first a soft red flame. The workman then opens the air-cock at U, until the flame becomes vivid, taking a blue tinge, and assuming a pencil-like shape.

Fig. 3.

As may be imagined, the workman now holds in his hand, at the end of a brass tube attached to a long india-rubber tube, a real *fire-tool*. Some idea of the value of such an instrument may be obtained when it is known that under a small bulk it can always be applied on the spot, and in every possible position. In soldering two

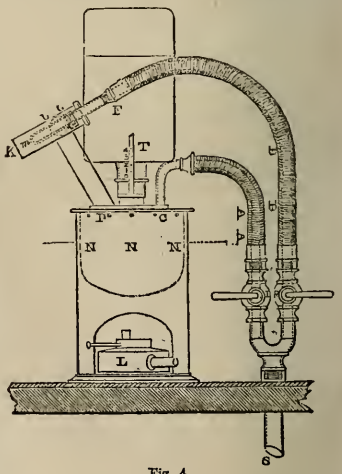

Fig. 4.

sheets of lead, the tongue of flame unites the edges into a homogeneous mass by instantaneous fusion, which may be confined to the exact spot required. The applications of this aërohydric flame to working in lead, zinc, copper, and platinum are very numerous.

Another kind of blowpipe (Fig. 4) burns the heated vapours of turpentine or petroleum. It is now substituted for the old oil blowpipe in the workshops of gold and silversmiths, jewellers, bronzists, dentists, enamellers, &c. A glass flask, kept constantly full, feeds a small copper boiler with spirits of turpentine, under which a spirit-lamp is kept burning, L. A thermometer, T, immersed in the turpentine, indicates the temperature suitable for operating. A bellows supplies air through S, into the india-rubber tubes, A A, and B B. Upon opening the first cock, E, the air enters the boiler at C, above the level of the turpentine, N N N, to pass out at D, carrying with it the vapours of the turpentine, which are lighted at K. At first the flame is soft and white. The second cock, F, brings by the tube B B, which terminates the tube or blow-pipe, J J, a current of

compressed air, which, projecting into the interior of the flame, renders it blue and vivid, giving it the form of a dart more or less expanded. It is well adapted for glass-working and soldering the precious metals.

We have no hesitation in saying, that with one or other of the blowpipes above described, all the difficulties in the art of soldering may be entirely overcome. Besides the economy, which is considerable relatively to the means formerly employed—particularly in soldering lead, and for jewellers' work—these instruments combine the best conditions known of cleanliness and health of the workman.

General Information.

CLUBS AND INSTITUTES.

Albert Working Men's Club, Knightsbridge.—A large attendance of members and friends assembled in the spacious lecture-room on the 29th ult., on the occasion of an address on "Education," by H. H. Sales, Esq., Secretary to the Metropolitan Adult Education Association. The speaker, in his opening remarks, expressed a fear that the subject would be considered dry and tedious—a fear that was not in the slightest degree realised. Having noticed the objections still offered to education, he traced the course of the student from infancy to manhood, noticing all the agencies employed. At the conclusion of his address he made a few pointed remarks regarding Working Men's Clubs. He deprecated their establishment as agencies for technical instruction, and explained their value as social regenerators. The chairman, in presenting the hearty thanks of all present to Mr. Sales, said that the attention and oft-repeated expressions of approval manifested that evening could only mean that the sooner he came again with a "dry" subject the better. Working men liked practice better than theory, and plain speaking than flattery.

Leeds Working Men's Hall Annual Soiree.—The Third Annual *Soirée* in connection with the above institute has been held in the Victoria Hall, when between 500 and 600 members and friends sat down to an excellent tea. A public meeting was afterwards held, at which there were present from 1,500 to 1,600—the principal portion of the audience consisting of the fair sex. The Mayor (H. Oxley, Esq.) presided, and among those present were Lord Milton, M.P.; Mr. E. Baines, M.P.; Rev. Canon Atlay, vicar; Rev. J. Blomefield, president of the institute; W. M. Kirkbride, hon. sec.; W. Stainton, assistant hon. sec., &c. Short speeches were the order of the evening, the proceedings being enlivened by a choice musical entertainment. Mr. W. M. Kirkbride, the honorary secretary, read the annual report, which stated that the committee were glad to acknowledge the success that had hitherto attended their efforts. The total number of tickets sold during the year had been 13,300, making the average weekly attendance upwards of 250. The committee had great pleasure in recognising the valuable services of Mr. Fred Spark, the honorary conductor of the singing class, which had been attended by an average weekly number of thirty. It was intended to form a series of educational classes, which the committee earnestly hoped the members would largely avail themselves of. The reading-room was well supplied with newspapers and periodicals, and was highly appreciated. The library had now increased to 700 volumes, and was, therefore, a valuable addition to the institute. The penny savings' bank department—a branch of the Yorkshire Penny Savings Bank—had been very successfully carried on, the average amount of deposits having been 24s. weekly. The total amount received during the last nine months had been £45 6s. 1d. The Sunday services, conducted by ministers of various denominations, had been attended by an average number of 100. In conclusion, the committee appealed to the working men of the West End to come forward and render to the institute still further support, as it was a hall which they might really call their own. Lord Milton, M.P., Mr. Baines, M.P., and other gentlemen, then addressed the meeting, which was of a most agreeable character.

Proposed Working Men's Club at Oswestry.—A meeting has been held at the Public Hall for the purpose of taking the initiatory steps in the formation of a Working Men's Club for the town and neighbourhood of Oswestry. Mr. Garbutt presided, and the principal workshops in the town were represented. Mr. J. Gibson having been appointed secretary, the following resolution was carried unanimously:—"That the objects of this society be the elevation of the working classes, morally, mentally, and physically, and the provision of better means of social intercourse." At the adjourned meeting there was a large attendance, and a lengthy conversation took place on the subject of ways and means; and it was ultimately resolved that a deputation be appointed to wait upon the committee of the Literary Institute, and ascertain upon what terms a suitable room could be obtained for the purposes of the club.

The Bridgeton Working Men's Club, Paisley.—The Bridgeton Working Men's Club and Reading Rooms, situated at the east of Canning Street, were formally opened on Thursday, 18th ult., by a *soirée* held in the large hall of the institution, which was crowded on the occasion by a most respectable company, and, with its open painted roof, its tasteful decoration of flags, and its brilliantly lighted interior, presented an interesting and animated spectacle. The chairman, W. Holmes, Esq., in the course of his address, said—"I am glad to have this opportunity of stating that, almost without exception, the mill owners and gentlemen in this district—so far as called upon—expressed their sympathy with the movement, and took shares in the building. These subscribers to the building fund, having elected six of their own number as directors, empowered them to purchase ground, and erect premises, on the understanding that, so far as occupied by the club, a maximum rent should be paid, sufficient to yield 5 per cent. interest on the cost of building, but that this might be reduced down to a minimum rent of 2½ per cent., should want of success on the part of the club render such reduction necessary. It was thought that, if it could not pay this, it should be allowed to fall to the ground, as evidently not having the support of those for whose benefit it was intended. The accommodation consists of this hall, a portion of which will be used as a general reading room, and the remainder as a room for billiards, bagatelle, American ice-boards, &c. A spacious room above will be used as a library and magazine room, and also probably for playing chess and draughts. Another room will be set apart for smokers, and a third will be used as a business room, which may be let for meetings of clubs having this institution for their centre, or otherwise, such as curling clubs, bowling clubs, benefit societies, &c. &c. The third resolution, passed at the same meeting, appointed a committee of working men, with Mr. Wright as convener, to raise a fund, to consist of 1,000 shares of 5s. each, to provide furniture, books, games, &c., and I am glad to say that, through the energy of that committee, and the appreciation on the part of the working men of Bridgeton of the benefits likely to arise from such an institution, upwards of 700 shares have been subscribed for."

Working Men's Club, Newcastle-on-Tyne.—A correspondent favours us with a description of this club, from which we extract the following passage:—"Our club is regarded as the principal in the North of England. Being the only one in this populous town (Newcastle-on-Tyne), it enjoys a patronage that not only renders it worthy of distinction, but enables it to possess attractions that tend much to the harmony of the members, and to the popularity of the institute. The premises consist of the second and third flats of a large building. On the first flat are the reading-room, smoking-room, housekeeper's room, and an excellent lecture-room. The library, class-rooms, and amusement rooms are all on the second flat. The reading-room is spacious, well lighted, clean, and satisfactorily warmed. Six polished oak tables, with chairs to match, are ranged round the room. On these tables lie the periodicals, in order and quantity as follows:—Thirteen of the weekly periodicals, among which are Cassell's papers, the illustrated papers, &c.; eleven magazines, seven provincial weekly newspapers, five London dailies, four London weeklies, and eight local and Manchester prints. Besides these (which include many of the leading papers) there are the *Builder*, *Engineer*, *Athenæum*, *Spectator*, and a few others. On the first of these tables, beside the periodicals, lie the "Members' Remark Book," containing suggestions and remarks of the clubbists. The library, being but lately begun, is not in any great stage of development. Upwards of 300 volumes on all subjects, partly purchased by the club, and partly contributed by friends, constitute all its resources; yet, three months since we had no library. About that time the committee, feeling the desirability of having one, and determining to do something more than merely to express this desire, got up a public meeting, and, placing Sir W. Armstrong in the chair, enlisted such an amount of assistance, that within six weeks afterward our library was inaugurated. Next the library apartment are the amusement rooms and class-rooms. These rooms require no remark further than to say that they are clean, comfortable, and well attended. The usual indoor sports obtain: the classes are for drawing, music (vocal and instrumental), and the drama. The lecture-room is the same size as the reading-room, is furnished with backed forms, having the one end of it fitted up with theatrical scenery, consisting of a stage, proscenium, foot-lights, wings, and four painted curtains. But what is most worthy of being known is, that all this was constructed by members during their leisure hours; joiners erected the stage and wings, a paper-hanger or two gave their assistance, and the curtains were executed by a journeyman house-painter."

INDUSTRIAL EXHIBITIONS.

On Saturday afternoon, the 3rd inst., the closing ceremony of the distribution of prizes to the exhibitors of the South-Eastern Industrial Exhibition took place in the Painted Hall of the Royal Hospital, at Greenwich. The Hon. Arthur Kinnaird, M.P., in the absence of Viscount Sydney, lord-lieutenant of the county, presided, supported by Sir Charles Bright, M.P.; Colonel Anderson, R.A.; the Rev. C. F. S. Money, the chairman of the committee; Judge Payne, and a large number of the local gentry. The Rev. C. F. S. Money, the chairman of the committee, said during the period the exhibition had been opened upwards of 85,000 persons had paid for admission. Of this number the vast mass were of the working classes, who had visited during the evenings to the number of 62,000, at a very low price of admission. 11,000 in round numbers had visited during the mornings, and 11,000 children had been admitted free. The total receipts had been £1,215, and the expenses in round figures £1,004, but there were other liabilities which, with the receipts of that day, would about be covered. The prizes were afterwards presented, and consisted of a gold medal (the receiver of which was greeted with tremendous applause), a number of silver and bronze medals, and some three certificates of merit of very beautiful design, illuminated and printed in gold. Amongst the recipients were a very large number of females, who had obtained prizes for embroidery and needlework, and who were loudly applauded on reaching the dais. Much amusement, however, was created by the introduction of one of the opposite sex, who received the principal prize as the best "needlewoman" in the exhibition. The presentation occupied such a length of time that a large proportion of the company began to leave. Ultimately Sir Charles Bright, M.P., Mr. Joseph Payne, and others offered a few observations, and after singing the "Old Hundredth Psalm," and returning a vote of thanks to the chairman, the proceedings closed with the National Anthem, in which the band and the whole of the company joined.

CO-OPERATION.

The Kilnhurst (Yorkshire) Equitable Industrial Provident Co-Operative Society.—The Twentieth Quarterly Report shows the following results:—"The cash received for goods sold this quarter is £828 15s. 4½d., and the profit realised is £67 13s. 6½d., which, after paying interest, and allowing 20 per cent. for depreciation of fixed stock, &c., we are enabled to pay a dividend of 1s. 6d. in the pound on all cheques brought in. The Society has been in existence five years, and has sold goods to the amount of £12,836 12s. 8d., and realised a profit of £841 1s. 10d., which has exceeded the expectations of the most sanguine parties connected with the society. The members' claims, as per ledger, is £771 15s. 5d., so that the society has gained more profit by £69 16s. 5d. than its present paid up capital amounts to; so that if all the members had only let their profits accumulate, every member could have withdrawn the money they have paid into the society, and then the society would have had £96 16s. 5d. more working capital than it has at the present time. We hope this will show to the members the utility of letting their profits accumulate, and not to withdraw them from the society, unless stringent necessity compels them to do so."

THE SHORT TIME AND WAGES MOVEMENTS.

The Hatters' Society (Bristol District).—The members of the above society having considered the high prices of the necessaries of life, and the advances in wages that employers in the other districts have conceded to their *employés*, resolved to submit to their employers a carefully revised advanced list of prices, which they presented on the 1st of November last, with a respectful request that it come into operation on the 1st of February, 1866, thereby giving the employers three months' notice. On the 1st inst. the deputation waited upon the employers, when they all consented to the new list in its entirety.

Power-loom Weavers' Wages.—All the weavers of Barnsley, about a month ago, asked for and obtained an advance of wages to the extent of 10 per cent., with the exception of those employed by Messrs. Taylor and Sons, the largest firm in the town, at which the advance was never asked for; but on the 2nd inst., shortly before noon, all the hands employed (about 500) struck work in a body, and, despite the remonstrances of the overlookers, every loom in the extensive shed was stopped until they had had an interview with one of the firm. Deputations were at once chosen from the damask and huckaback weavers, who had an interview with one of the above firm, who, after a lengthened discussion, promised to lay the matter before the whole of the firm. The hands then resumed work.

Farm Servants' Wages in East Lothian.—At the Haddington hiring fair a slight rise took place. In the lower districts of the county, where the wage is paid mostly in money, with an allowance of meal, there was an increase of from 30s. to £2 a year, increasing the money wage from £16 to £18. In other districts, where the extras are greater, an increase of £1 was given; and in the higher districts of the county, where the custom is to give the hinds a cow's keep, the wages remain stationary—the money wage being from £12 to £13. The effect of the changes that have taken place has been nearly to equalise the rate of wages in the county, the hinds in the lower districts having hitherto been paid at a wage somewhat lower than has been given in the upper wards.

The Iron Moulders in Manchester.—During the last few weeks the journeymen moulders of Manchester and Salford have made a demand, at a very short notice, for a general advance of wages of 2s. per week. The weekly wages given to iron-moulders in Manchester and Salford have been 34s. and upwards, which are stated

to be more than the rate obtained by any other class of operatives connected with the engineering trades in the same locality, and the present demand is for 2s. advance for every moulder employed, whether he receives 34s., 36s., or 38s. This is looked upon by the employers as an attempt to initiate a general rise of wages in all branches, as a similar advance can hardly be refused to engineers, millwrights, smiths, turners, pattern-makers, &c., after it has been granted to the moulders. Most of the foundries in Manchester have ceased casting for the present, and others are partially worked by moulders at the old rates. The masters have had several meetings, and it is intended, we are informed, that a Defence Association be formed, unless the present demand be withdrawn.

STRIKES.

Smiths' Strikers' Turn-out at Hunslet.—The men employed by Messrs. Manning, Wardle, and Co., at the Boyne Engine Works and the Steam Plough Works, Hunslet, struck work in a body about two weeks ago, in consequence of the refusal of the proprietors above named to give the men an advance of wages demanded, which was from 16s. to 21s. per week. The masters, however, offered to give the advance on a graduated scale, but this did not suit the men, and they accordingly struck work. Thirteen of the men have returned to their work; and with the aid of a steam-hammer erected by Messrs. Manning and Co., and some additional men from a distance, they are now able to dispense with the services of the ringleaders of the movement (who have since expressed a desire to return to their work), and carry on their extensive business as before, having, in the meanwhile, advanced the rate of wages of the men considerably.

Strike of Colliers at Shireoaks, North Notts.—The whole of the men at the Shireoaks Colliery (belonging to the Duke of Newcastle) are now out on strike, and the works are standing still. This is the first time anything of the sort has occurred since the commencement of the works, nearly ten years ago. The men have turned out for an advance of 1s. per score, and their statement is, they were promised an advance in prices as soon as a rise should occur in the market price of coal. They further state that an advance of 1s. 6d. per ton at the pit mouth took place a month ago, and on the 2nd inst. they made an application for the rise of 1s. per score. This not being acceded to, they turned out on the following Wednesday, and held a public meeting near the works, at which upwards of 400 miners were present. A miner named Lea was the principal speaker. A resolution was moved, and carried unanimously, to the effect that the men should not go to work again until their demand was acceded to. A second meeting was held the next day, the chairman taking up his post in the middle of a large tree, surrounded by the miners. Thirty-four delegates were sent from this meeting to confer with the manager as to their demand, and after a consultation of two hours' duration the application was refused. On the return of the delegates to the meeting, and the result of the interview having been made known, it was resolved that the men should not go near the works again till they went for their wages on the Saturday, and if their demand was not complied with they would then remove their tools.

The Cotton-Spinners of Ashton-under-Lyne.—The self-acting winders in the employ of Messrs. Reyners, cotton-spinners, Ashton-under-Lyne, have turned out in a body. They complain of the quality of the material used in the mill.

The Rochdale Piecers.—The "piecers" employed by Messrs. Schofield, Heap, Berry, and two other firms in the neighbourhood of Milnrow, Rochdale, have turned out on strike for an advance of wages.

BENEFIT SOCIETIES.

The West-End Waiters' Benevolent Association, 44, Pall Mall, London.—This association has been established as a friendly benefit society to relieve its members in time of sickness or distress, and also keeping a register of vacant situations, to supply such of its members who require it with situations. A list of its members wanting places is also kept; and as only men who have been waiters four years are admitted members (except under conditional circumstances approved by the committee), the committee can guarantee men of good character and known ability to proprietors of hotels, taverns, and restaurants. Members, by paying an entrance fee of 2s. 6d., and a weekly contribution of 6d., are assured the following benefits:—12s. per week in sickness; upon the death of a member, £12; member's wife, £6; member's child, £3. Also, any member out of a situation is entitled to a situation from the books of the society. Proprietors of hotels and other gentlemen wishing to aid the association, can become honorary members by paying 10s., or any amount they please, per annum. Waiters living in the country, who are unable to attend at the society-house, can join the association by applying to the secretary for the necessary forms. In reference to the association, a waiter writes to us—"The waiters are a very numerous body of men—a separate class of men, if I may so call them, to other labouring men; but I see no reason—despised as they are at the present time—why they should not be as respected and respectable as any other body of working men. The time has now arrived when we are determined to show what *we* can do by combination."

Correspondence.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE LETTER CARRIERS' GRIEVANCES.

To the Editor of the Working Man.

Sir,—I wish to thank you for the well-written article on "The Letter-Carriers' Grievances," and I wish to correct one error which is likely to mislead the public. You make it appear that a letter-carrier receives 30s. per week after ten years' service; such is not the case. A letter-carrier, under the last scale of wages issued by the Postmaster-General, will have to labour in the service for upwards of sixteen years before he gets 26s. per week; and then, if he is so fortunate as to get that, he will rise, by annual increase of 1s. per week, until he reach the noble sum of 30s. per week, which I don't believe one hundred out of the whole of the letter-carriers receive. I would further explain the grievances of the letter-carriers; but they are going to have a public meeting in the city, to give a statement of their grievances, at which meeting I hope the merchants, bankers, &c., will attend, and hear for themselves the grievances which I with my fellow-servants will be there to explain. The scale of wages issued by his lordship the Postmaster-General looks well on paper, but myself, with a great number of my fellow-servants, can prove it is not a fair statement.—I am, Sir, your obedient servant,

A Letter-Carrier Thirteen Years,
February 3rd, 1866. only 25s. a Week.

WORKING MEN'S HOMES.

To the Editor of the Working Man.

Sir,—You have repeatedly given us some most interesting descriptions of how working men are housed and treated abroad; and nothing could be more striking than the difference between our homes and those of our foreign brethren. When a working man gets a job in London, the first thing is, of course, to find the best place to pitch his tent nearest his work. He will commence the dreary task of lodging-hunting by wandering up and down the most decent streets he can find, and applying where there are rooms to be let. The first question put to the working inquirer is, "Have you any children, sir?" and as most of this class have their quiver full of these little ones, the invariable reply is, "Yes, ma'am, I have." Whereupon the door is shut, and he is politely informed, "We couldn't think of taking lodgers with a family." And so he goes on, seeking and not finding, till he is driven into some locality where there are large houses, owned by greedy and often sensless money-grubbers, who let each room out to a separate family, at a very high rent. And these landlords—who form part of a series of land-sharks, that live by preying on the working man—knowing the power they possess, inasmuch as his class of tenants, having large families, cannot easily get accommodation elsewhere, will not keep the places in even decent order or repair, unless forced. At the same time, they take very great care that the rent is duly paid.

The wife sends the children to the only playground that she can—and they must play somewhere—viz., the streets, where they soon get the education that brings us so many precocious boys and bad men, that are complained of so much and so loudly. The wife soon becomes irritable and excited; and how the husband is driven to the public-house by an uncomfortable home is so generally understood that it need only be mentioned, just to say a word for the women, who generally get all the blame. How is it possible for any woman, in such circumstances, to make a happy home? Those who understand the matter must agree that, unless she is something superhuman, it is a perfect impossibility. There is one alternative to this. The working man may take a house, and make up the rent by underletting; but this has evils, as many as the former case. Drink has had the credit of being the cause of nearly every crime; I am bold enough to assert it is not so. Bad and uncomfortable homes form the seed, and drink expands them until they grow into deep-rooted and almost irremovable evils. Though there are many valuable agencies at work to improve the masses of working men, the most valuable and real way of doing them good is by giving them much better and much cheaper homes; and I think these might be had as well in England as abroad, and it is certain they would pay the promoters fully in every sense.—I am, Sir, yours respectfully, G. W. A.

SUNDAY EVENINGS FOR THE PEOPLE.

To the Editor of the Working Man.

Sir,—I should not have troubled you with a second letter on the above subject, had not two of your correspondents brought a charge against me, in your impression of the 3rd inst., which demands a reply.

In introducing the question, "Is it right that secular lectures should be delivered on Sundays?" I made use of the words that "the scheme was an affair of cash, although no money might be taken on Sunday," tickets which had previously been paid for being the means of admittance. From these words Mr. Rogers draws the inference that I have made a "vile imputation" against those gentlemen who have taken the affair in hand; and Mr. "Mac" follows suit by remarking that I am "very indiscreet, in making an accusation of catchpennyism which implicates a host of gentlemen," &c. &c. I deny that I have made a "vile imputation" on the character of any one; neither have I, in the eloquent language of Mr. "Mac," made "an accusation of catchpennyism." And I can prove what I assert. It is hardly likely that Professor Huxley and his associates are the originators of the movement. It is more than probable that they have merely come forward at the request of some society—possibly the "National Sunday League;" nay more, for aught I know, they may receive no remuneration whatever. How, then, can my remarks be considered in the light of a "vile imputation?" But suppose, for argument's sake, in the words of Mr. Rogers, "the cream of the literary and scientific world" (an assertion open to question) are the sole originators, and are solely responsible for the undertaking, even then my observations would not amount to an "accusation of catchpennyism;" for the scheme is an affair of cash, or, if you will, a commercial transaction, in this wise: a contract is entered into between the lecturers and the public, the conditions of which are that the public pay a certain amount of money to hear certain discourses. The discourses are delivered on Sundays, and therefore the lecturers are, in my opinion, *morally* wrong, whether they are or are not the originators, for fulfilling a commercial compact on the day of rest, but I do *not* accuse them of sordid motives.

Apologising for the length of this letter, but trusting to your sense of justice to insert it, I beg to remain yours respectfully, A Bookseller's Assistant.

February 6th, 1866.

[Our correspondent having had the opportunity of reply, we must decline to insert any further correspondence on the subject. The lectures are discontinued, and it is most undesirable that personalities should be indulged in. Several correspondents have addressed us on this matter; but, as it appears difficult to avoid theological discussion, we feel the necessity of declining to insert their communications.—Ed.]

TO CORRESPONDENTS.

W. M. will see that we have taken up the subject of the preservation of the open spaces around the Metropolis, and we shall recur to it whenever we have reason to think that our efforts may be of service to the good cause.

C. N. (Sheffield).—We shall not be able to afford space in our columns for the proposed essay.

Stonemason.—Apply for a detailed prospectus of the building society, which will enable you to form a better judgment of the matter than the short advertisement, which, it may be said, issues from a respectable quarter. We are unable to give any information respecting the other society.

J. P. (Stalybridge).—The secretary of a building society would be able to give you better information on such a subject than we can. The proposed plan does not appear to be very practicable.

A Plumber.—The article on the "Soldering Blowpipe," in the present number, will give you the information you require.

J. H.—Success in gilding on glass depends on the tact and skill of the operator. No instructions will supply their place. The design is drawn in gold size, and the leaf applied in as large portions at a time as practicable.

A. Middlemist.—Indigo blue from peat is obtained from the products of its dry distillation. We shall give details of the process as soon as they are published. A beautiful green dye may be obtained from picric acid and indigo, which is not at all injurious to health, like the copper and arsenic greens.

James White.—Glass globes may be silvered by pouring in an amalgam of silver, and turning the globe round and pouring out the excess of the metals: or the globes may be silvered by Drayton's process, in which a solution of nitrate of silver, mixed with organic substances, throws down metallic silver in a pure state.

A. B.—We quite agree with you in your objections. The article referred to was given only as information.

A Cabinet-maker.—We shall give full details of varnish-making in early numbers of the Working Man.

Adamson, W.—There are various methods of quickly clarifying water for manufacturing purposes, such as by the addition of alum and of hæmatite.

Woodfern, H.—Teazles may be hardened by submitting them to the action of a warm or a cold solution of blue vitriol (sulphate of copper). The teazle, without losing any of its elasticity, acquires remarkable properties. It is preserved from decay, and can be used as well in the green as in the dry state, and be employed immediately after it is gathered; besides, it performs its work with a remarkable degree of regularity, because the natural hooks of the teazle acquire by this treatment equal properties of elasticity and tenacity.

J. B. (Bristol).—We will reply to your inquiries by letter, if you send a stamped addressed envelope.

George Nixon.—There is such a person as you name—a very respectable tradesman, who will, doubtless, reply to your letter in due season.

A Chairmaker.—The designs may be copied by a pantograph, which may be obtained of dealers in artists' materials, and costs from five shillings and upwards; or you can copy on large paper, ruled in squares, corresponding to squares ruled on the pattern.

R. B. (Newport).—You can procure the tools for marquetry work at almost any tool shop. We do not know of any book on this subject. You will find some information in Cyclopædias. Information on French polishing and dyeing woods may be found in any book on varnishing, or in future numbers of the Working Man.

W. B.—The Patent Office Museum is at South Kensington. It is open daily from ten till four, free of charge.

A. Wigan.—The scarcity of milk in your neighbourhood may be met by your providing yourself with a stock of preserved milk, which is imported into this country from the United States, in sealed tins containing one pound. Loaf sugar is used in preserving this milk, which is quite pure, and of excellent quality, as we have proved.

Boss.—Sir David Brewster recently expressed himself favourable to the system of granting patents for inventions.

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HENRY JORDAN,
Agent-General for Emigration for Queensland.

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Queensland.—Black Ball PASSENGER LINE.—New arrangements with H. M.'s Colonial Government. Reduction of steerage fare to £15. Land Orders £30, to all classes.

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To Ironmongers.—Wanted, by a respectable Young Man, aged 18, an immediate ENGAGEMENT as an APPRENTICE for two years. Could be useful at once in a large shop, having some knowledge of the trade. Address, H. Longman, Milborne Port, Somerset.

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Drapery.—Wanted, a Young LADY for a pushing trade; a good saleswoman and stock keeper. Must be a good bonnet trimmer. One accustomed to a small house preferred. Apply to I. Blow, Draper, East Greenwich.

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THE WORKSHOPS OF THE WORLD.

MATCH-MAKING MANUFACTORY

A Visit to a Lucifer Match Manufactory.

THE insignificant-looking lucifer match has become one of the indispensable adjuncts of modern civilisation. Unknown to the public thirty years ago, it has risen with unprecedented rapidity into popular favour, effectually superseding the flint, steel, and tinder-box so familiar to our forefathers, and which, like the watchman's box, the sedan-chair, and the oil-lamp, have become things of the past, never to be revived in these days of express trains, ocean steamers, and electric telegraphs. The contrast between the tiny splint and the unguinly form of its predecessor, the common brimstone match, is eminently suggestive of the difference existing between the

past and the present. Yet, common as the lucifer match is, there are few who really know anything of the manner in which it is produced. Like the pin, the lucifer match forms one of the curiosities of modern manufacturing industry. Although its manufacture only dates from 1833, yet whole forests have already been cut down to supply the immense and still increasing demand for the wood of which the matches are made, to say nothing of the many tons of chemical matter likewise required; and when we come to consider that at present the trade is, comparatively speaking, in its infancy, the probable extent of its future requirements becomes sufficiently startling.

As is frequently the case with great industries, the lucifer match manufacture has risen from extremely small beginnings to its present magnitude, every new invention for simplifying the processes or economising labour tending to give an immense impetus to production; the increased cheapness of the article invariably leading to a proportionate increase in the demand. The first lucifer matches were very defective. The splints were too large, and did not ignite easily; while, from want of experience, the chemical ingredients were badly mixed, a much larger proportion of phosphorus being employed than was necessary. They were also liable to be affected by the least humidity of the atmosphere—a defect still characteristic of the generality of foreign-made articles.

During the earlier years of the manufacture, the factory system was unknown, and the matches were made on a limited scale, in small and unhealthy workshops, where few or no sanitary precautions were taken to protect the health of the workers, who generally followed their occupation in buildings utterly destitute of the proper amount of ventilation. It was during this period that the painful and loathsome disease known as "necrosis" of the jaw, was found most prevalent amongst the workers, especially those engaged in the "dipping" process—that is, the dipping of the lucifer-ends into the liquid phosphorus. Mr. William Köhler, of Birmingham, stated, in his evidence to Mr. White, that there was a great dislike in Germany generally amongst the work-people to working in a match manufactory, and that in many parts it is usual to employ prisoners for the work. In this country there is no difficulty in procuring the requisite amount of child or adult labour, no matter how poorly paid or dangerous may be the various processes.

Of late years, however, the factory system has been largely introduced into the trade, and bids fair to rapidly supersede the smaller establishments in which few workers only are employed. Amongst the larger of the London firms are those of Messrs. Bell and Black, Bryant and May, Hynam, Letchford and Co., and Bell and Co. The various establishments belonging to these firms are conducted on a most extensive scale, and in a thoroughly scientific manner. Very different are the majority of small manufactories, which are generally so conducted as to be both a danger and a nuisance to the surrounding neighbourhood. Mr. White's report is full of descriptive details of visits paid to such places, of which poverty, dirt, and squalor may be said to form the general characteristics. One of these small establishments was situated in a street, respecting which we are told that clothes, or rags, were hanging to dry in all directions, while hand-trucks, filled with remains of most offensive fish, &c., made locomotion a difficult matter. The matches were made in the living-rooms of the house by the family. "A long tear between the body and skirt of the frock worn by the little bare-legged girl," says Mr. White, "showed plainly that this was her only covering of any kind; and her mother was equally ill-clothed."

The moral and social condition of this class of workers is lamentable. They seem to be the lowest of the low, their existence being too often little more than a constant battle with cold and starvation. The introduction of the factory system and mechanical appliances into the manufacture has led to marked results, the health, morals, and remuneration of the workers being in every way improved thereby. Such is the case at the Lucifer Match Manufactory of Messrs. R. Letchford and Co., Bethnal Green. Passing through the closely populated neighbourhood of the Cambridge Heath Road, in the direction of Old Ford, we find ourselves in Three Colt Lane, once a pleasant country thoroughfare, with real green hedges and shady trees, but now lined with rows of habitations; the formation of Victoria Park having given an unprecedented impetus to building operations in this remote portion of the metropolis. In the lane alluded to is the establishment—Messrs. R. Letchford and Co.'s—which it is our purpose to describe. The factory stands in the midst of a clear, open space, forming part of the same premises, and consisting in part of grass and garden, the whole covering an extent of more than 1½ acres. This is in compliance with the provisions of the Metropolitan Building Act, which insists that buildings in which dangerous manufactures are carried on shall be situate at least fifty feet from any other building, and not less than forty feet from a roadway. This rule, intended to lessen the mischief arising from explosion or fire, has proved, indirectly, a means of promoting the health of the workers, by affording them a larger supply of pure air than they would otherwise have obtained.

The premises are divided into two clumps of buildings, in the central one of which the manufacture is principally carried on, the other being devoted principally to the preparing of the wood for the match-boxes, and the manufacture of ink and blacking. The wood used in making the matches consists of the best Canadian pine, a kind of timber which generally possesses an extremely fine grain. The wood is not cut on the premises, but is procured direct from the saw-mills, where, by means of steam machinery, it is cut, first into lengths, then into blocks, and subsequently into splints, with beautiful precision. These splints, which are twice the length of the ordinary lucifer match, are made into bundles, each containing from 2,000 to 2,500 splints.

The first process to which the splints are subjected is the *scorching*. This is effected by placing the bundles upon a heated plate, by which means both ends are speedily heated, or charred, to a degree which greatly facilitates the process of *dipping*—the heated wood more readily absorbing the melted brimstone or paraffine than would be the case had the wood been of the ordinary temperature. From the tropical-like warmth of the scorching-room, the splints are passed (still in bundles) through a window into a room in which are several pans filled with paraffine, kept in a melted state by means of steam. After both ends of the bundles have been saturated with paraffine, or, if needs be, with brimstone, the splints are taken to the saw-mill, where they are cut into two lengths. When brimstone has been used, the bundles are rolled about by boys, previously to being cut, for the purpose of preventing the splints from clinging to each other. The splints are next carried to one of the *framing*-rooms. There are two of these, each seventy feet long by thirty-five feet wide, proportionate height, and well ventilated. In these rooms the utmost activity prevails, upwards of 300 children being employed in placing the prepared matches in frames, previous to the combustible mixture being attached to the ends. In each room there are twenty-four tables, each having a stand for twelve persons.

The table is similar to a large school desk, but more upright. An iron frame is placed in a standing position, and from a quantity of matches lying on the flat part of it the framer takes and places a run at the bottom upon a small piece of board with notches in to receive fifty, at equal distances apart, then piles one board upon another, each run having the fifty notches placed in the grooves, and in a few minutes the task is completed. The whole is then screwed tightly together, forming a compact mass. Each child takes her full frame, and according to her number—each person being known in the building by one—a mark is made upon a slate by a person at the end of the room, when at the end of the day the number of frames each has filled is counted, and paid for her portion at the end of the week. It is curious to the visitor to hear the constant reports of lucifers being trodden upon, but the floor being either of stone or iron, all danger of fire is done away with.

The room in which the composition is mixed and prepared is called the *kitchen*, and a very important place it is. Great care is required, and the process is performed by two steady and skilful men. The ingredients are given to one of the men, who first mixes it in a pan dry, similar to a cook making paste, and when worked with the hands sufficiently, is laid upon a stone or iron slab. Water is then added to it, and a stiff paste made. It is then placed in pans, and a certain quantity of glue added, to make it adhesive to the matches. Steam is used for all the heating processes.

The next process is the *dipping*, or covering the ends of the splints with the explosive material. A panful of the mixture is taken from the kitchen, and put into a receptacle of hot water, which is kept at a certain heat during the time required. The dipper takes the frames, which are brought by the girls from the framing-room, and (after the mixture is placed upon the iron slab, and regulated by a gauge to about the thickness of one-eighth of an inch) dips them into the thin paste, the whole of which is charged with the explosive ingredients.

After the matches have been dipped, they are taken by boys to the *drying-rooms*. These are three in number, one to each dipper, and they are built with every care for the prevention of accident. The floor is thickly spread with sawdust, which causes the loose matches to sink under the feet, and thereby escape friction. The rooms are of arched brick, having double iron doors, and should a fire occur, these doors could be closed, and the ventilators or air-traps at top let down by the dipper, and the rooms hermetically sealed; the fire is then smothered. For every frame taken into the dipping-room, one of a two days' drying is taken out to the *packers*; and from there being fifty splints in a row, boxes containing 100 or 200 are easily filled, very little calculation being required. Nevertheless, it is surprising to see how dexterously the filling is done, as is also the framing; many of the children not being more than nine or ten years of age, and their little fingers acting like clock-work.

The *box-making* is the last round in the ladder, and forms a very good concluding part of the process of making a simple box of lucifers. The wood of the boxes is made of the best spruce-fir, pieces of a sufficient length being placed upon a movable plane, which travels backwards and forwards upon a railroad. When the plane is cutting the wood, it is pulled by means of steam power along the under surface of the block, it being securely held in its place at either end by screws and blocks. The slices are cut with amazing rapidity, and it requires two of these powerful machines to keep supplied the boys who prepare them for the boxes.

The boys take the slips or slices, and, in quick succession, place them upon a block which is gauged with thin pieces of metal. They then bring down upon the slice of wood, with some degree of strength, a block indented with a corresponding gauge, which marks the grain of the piece of wood, so as to double it up into the shape of the box, and cut it off at the same time. One boy can cut or prepare twenty gross an hour.

Other articles, such as vestas, vesuvians, ink, blacking, &c., are made in the establishment of Messrs. R. Letchford and Co., but the processes employed in the manufacture of these do not at present call for particular remark. Some notion may be formed of the enormous quantity of vestas and matches made by Messrs. Letchford and Co., by the assertion that the wax taper used for the vestas measures some 600 miles per week, or sufficient, in the course of the year, to go round the circumference of the globe, and leave more than ample length to stretch from England to America, and back again. About 24,000,000 vestas are made per week, besides some 60,000,000 paraffine matches.

A Magnesium Lamp.—The Magnesium Metal Light Company, which has works in Springfield Lane, Salford, has received from America a lamp which is stated to be the best means yet devised for burning the magnesium ribbon. This lamp contains an apparatus of wheel-work for unfolding the metallic ribbon, two strips of which are forced downwards through a tube, at the mouth of which the combustion takes place. Over this tube, and just below it, work two metallic tongues, which clear away and clip off the oxide, which has hitherto been the chief obstacle to the use of the magnesium light for any continued period. This apparatus is not altogether perfect, as owing to the oscillation of the means for effecting a clearance of the oxide, the light emitted becomes somewhat variable, although the gradations are rapid; yet it probably contains the germ of what will ultimately prove to be a solution of an hitherto difficult problem. Beneath the burning wire is a cup opening into a chamber into which the oxide (which is pure magnesia) falls, and above the body of the lamp is a small chimney with a condenser formed like a series of sieves; the vapour, as it rises, settles upon the slips of perforated metal, and is found to result in a deposit of magnesia in very minute particles.

How to Start a Co-operative Store.

There is a great advantage in establishing a fixed Co-operative Store in any neighbourhood. When it has grown to such dimensions as to include the custom of the poorer families around it, it has a distinctive moral effect. Besides increasing their means, it improves their habits—teaches providence, and the art of association.

We find, from further correspondence received, that a desire exists in many parts of the metropolis for detailed information how to proceed in the formation of a new store. A Spitalfields Co-operative Club is in contemplation. A number of Bermondsey tanners have in view to form a Co-operative Society.

The first thing to do, is for the two or three men who are the promoters of the undertaking to call a meeting of all the persons they know likely to care for the object in view, and able to promote it. In this world two or three persons always do everything. Certainly, a few persons are at the bottom of every improvement, initiating it, urging it on, and making it go. The callers of the meeting should be men who have clear notions of what they want to do, and how it is to be done, and why it should be attempted.

The first thing the meeting has to do is to arrange for subscribing capital. This is usually done by each person intending to join the store putting down his or her name for twopence, threepence, or sixpence a week—or more, as each may be able—towards the payment of shares of one pound. If the store is to be a small one, a hundred members subscribing a one pound share each, might enable a beginning to be made. In most stores, each member is called upon to hold two shares. In Rochdale, each holds five one pound shares. It is best and safest for the proposed members to subscribe their own capital. Borrowed money is a dangerous thing to deal with. Interest has to be paid upon it often before any profits are made. Sometimes the lenders become alarmed, and call it in suddenly, which commonly breaks up the store; or the directors have to become guarantees for its repayment, and then the control of the store necessarily falls into a few hands. Disputes arise about management; those who have become largely responsible fail to receive the support of the members, when they most need it and most deserve it; and the scheme languishes, or has financial convulsions, followed by fever of feeling and fatal prostration. By commencing upon the system of the intending co-operators subscribing their own capital, a larger number of members are obtained, and all have an equal and personal interest in the Store, and give it their custom, that their money may not be lost. This plan secures not only a common interest, but a large and permanent custom. On this plan, it may take longer to collect the capital, but the capital lasts longer when it is collected, and is much more productive.

A secretary should be appointed at the first meeting, and a treasurer; and two or three nimble-footed, good-tempered, earnest, willing fellows should be named as collectors, who shall go round to the members, and bring into the treasury their subscriptions. Some place should be chosen where members can pay their subscriptions—many will have the right feeling, good sense, and punctuality to go, or send, and pay their money unasked. But these are always very few. Many will think they do quite enough to subscribe, without being at trouble to do it. Others who have the right feeling, and know what they ought to do, have no methodical habits, and no sense of punctuality, and must be looked well after, or they will be sure to be in arrears. In building and all kinds of friendly societies, every workman well knows that an elaborate, costly, and vexatious system of fines has to be resorted to, to compel members to do what they engage to do, and what it is their interest to do. Considering, as Dr. Watts says, that "the mind is the standard of the man," it is astonishing how few people "know their own minds," and how many have to be fined to bring it to their recollection that they have "minds." Numbers of well-meaning working men have no control over their wages. They can only pay at a certain hour in each week, and if they do not do it then, or the collector does not catch them then, they cannot pay that week at all, for the simple reason that all their money is gone. The collectors of the store funds require to be men of practical good sense, and well acquainted with working-class nature. They must be capable of no end of trouble, and have infinite patience. "Why should any men take all this trouble on behalf of others who ought to do their duty?" is a question that the collectors will be sure to ask themselves many times. "Why should one part of the society have thus to wait upon and dance attendance upon the others, whose interest is the same as that of the peregrinating collectors?" We must leave the answer to the good nature and good conscience of these voluntary workers. We only state the facts of what will have to be done—what always has to be done; and to give our ungrudging meed of praise to whoever undertakes this work. They are the real founders of the store; they cause the fund to exist which creates it; they teach the first lessons of providence to hundreds of families who else would never learn them.

The advantage of getting the capital paid up is very great, not merely as a means of buying in the best markets, but in its influence on the minds of the members. The most merciless critics and poorest supporters of a store are always those who are in arrears. They are the first to find fault and the first to leave the store to take care of itself, if any difficulty arises.

When a hundred members have subscribed a hundred one pound shares, a small store may be ventured upon. It will be safer if the hundred members have paid up five shares each, for a capital of £500 is not too much for the commencement of a good store in London. If, however, only £100 is subscribed, the rule followed should be to retain all profits made by members dealing at the store until each has paid up five shares, which will give the store £500 to work with before paying out profits.

The Rochdale rules would be useful to follow as a model, and every store would be instructed by seeing them. A note and a dozen stamps sent to Mr. William Cooper, Oldham Road, Rochdale, will have attention, and rules of the Rochdale Society will be returned. It is the great merit of the Rochdale Pioneers, that they willingly give information to all inquirers. In another paper we will treat of the kind of place that ought to be selected for a store, and the kind of persons who ought to be sought for members, the nature of the first expenses to be incurred, and other details of the commencement of a store. The Co-operative Societies all take out licences, as they sell to the general public as well as to members. The Spitalfields Co-operators wish to know whether, as a club, they require licences. It is better to be safe, and take out licences, even if, as a club, they were technically exempted. But the first thing to do is to collect sufficient capital to found a store that shall be able to maintain an ample stock of pure provisions, and pay ready money for everything, and keep a decent balance in hand. Professor Phillips advised the members of the British Association for the Advancement of Science to be "sure of their facts" before they reasoned from them; and we would say to all intending Co-operators, be sure of your capital before you commence a store.

Labour and Machinery in Paris.—Recent returns give us the following particulars respecting the labouring population and the steam power employed in Paris during the year recently completed. The industrial population is made up as follows:—Manufacturers, 101,171; workmen and workwomen, 416,811. But of the former class more than 62,000 are little masters, either working alone or with one assistant, and belong, in fact, to all intents and purposes, to the second class, and there are still to be added 26,242 foreman-cutters and others who are really working men. Moreover, the State employs in the public tobacco, porcelain, and tapestry manufactories and other establishments 45,028 workmen, making in all a total of nearly 40,000 employers and 550,280 workpeople, of whom 105,410 are women and 25,540 children. These figures include only actual working hands, and not the members of the families dependent on their labours. As regards steam power, there are 13,691 engines employed in industrial operations in France, locomotives not being included. Of the former, 1,800 are within the limits of the metropolis, and their aggregate power is about 10,000-horse power, or equal, according to the French mode of computation, to 70,000 working hands. The value of the ground occupied by industrial buildings, not counting, of course, the lodgings of the working classes, is estimated at about four and a quarter millions sterling, and the total trade at about a hundred and twenty millions per annum.

THE DAY IS COMING, NEVER FEAR.

(*Selected.*)

Student! bending o'er the page
Writ by seer in long past time—
Reading how, in future age,
Earth shall emulate her prime:
Sigh not thou, nor deem it vain—
Error's power is on the wane;
And the day is coming—
Yea, it's coming, never fear.

Thinker! planning in thy brain
Kingdoms from injustice free,
States where Truth supreme shall reign,
Realms of Right and Equity:
Deem not thou thy thinking vain—
Folly's power is on the wane;
And the day is coming—
Yea, it's coming, never fear.

Singer! singing from the heart
Songs of love and brotherhood;
Seeking ever to impart
Aspirations for the Good:
Heed not those who call it vain—
Like the night, earth's discords wane;
And the day is coming—
Yea, it's coming, never fear.

Teacher! speaking words of might—
Fraught with counsel, full of cheer—
Sounding 'mid the gloom of night,
Like a trumpet, shrill and clear:
Think not thou thy teaching vain—
Ignorance is on the wane;
And the day is coming—
Yea, it's coming, never fear.

Worker! toiling, hour by hour,
With true hand and earnest face,
Working deeds of skill, or power,
Courage, usefulness, or grace:
Faint not, nor thy work disdain—
True hearts cannot work in vain;
And the day is coming—
Yea, it's coming, never fear.

See! on the horizon's bounds
Stand bright heralds of the day;
Hark! o'er earth strange Memnon sounds
Answer to the glancing ray;
While the evil things of night
Spread their pinions for the flight—
For the day is coming—
Yea, it's coming, never fear.—W. F. M.

BRILLIANT GILDING ON CHINA WITHOUT BURNISHING.

To gild china without burnishing, but yet brilliant, heat gently a mixture of 32 drachms of gold, 128 drachms of nitric acid, and the same weight of commercial hydrochloric acid; after the gold is dissolved, add 1·2 drachms of tin and 1·2 drachms of butter of antimony (chloride); when all are dissolved add 500 drachms of water. This solution of gold in diluted *aqua regia* is decomposed by a special balsam, formed by dissolving at a gentle heat 16 drachms of sulphur, 16 drachms of Venice turpentine, and 80 drachms of spirits of turpentine, until the solution becomes viscous and of a deep brown colour. When the solution is complete add 50 drachms of oil of lavender, and it should not deposit sulphur upon cooling. The gold solution is poured upon this balsam; the mixture is heated gently and slowly stirred, to bring the two liquids, which react upon each other, into contact. The chloride of gold becomes colourless, and if the operation has been well conducted, the gold is entirely dissolved in the oily liquid, which becomes heavy and resinous upon cooling. The water that floats above is poured off; it removes the acids. The mass is washed in warm water, and when the last traces of moisture are removed, add 65 drachms of oil of lavender and 100 drachms of turpentine. This is heated until completely dissolved, then 5 drachms of subnitrate of bismuth are added. Lastly, the clear portion, which is completely free of reduced gold, and every other insoluble substance, is decanted. This clear portion is brought, by suitable concentration, to a state fit for use. The product charged with gold then appears under the form of viscid liquid, which reflects a light green tint; the gold is in a solid state. The Venice turpentine imparts to the liquid the siccative property which it must possess for the ornaments to dry quickly. The auriferous resins abandoned by the removal of the essential oils decomposed by heat, yield at a low temperature a deposit of carbon loaded with gold, which retains the appearance of gold leaf of excessive thinness. The beauty of the gilding results, among other things, from the absence of all fusion in the resinous matters.

Five Great Taxpayers.—There are two articles that produce each above £5,000,000 a year—the one is sugar, the other tea, including coffee, chicory, &c. Tobacco and malt produce above £6,000,000 a year each; and the duty upon ardent spirits produces more than both of the last.

*Coin, from the Crucible to the Press.**

When the gold becomes solidified in the moulds, the set screws which bind the latter together are relaxed, and they fall apart, leaving the bars perfectly free. The bars are then removed, one by one, and deposited by the aid of a pair of tongs in a cold water bath. Thence they are carried to an iron-faced bench and trimmed, so as to free them from any projections resulting from the obtrusion of molten metal between the joints of the moulds. It is almost needless to say that the chips, or trimmings, are carefully preserved, and will finally be thrown again into the crucibles. In fact, no particle of the material is allowed to escape, for the very dust on the floor is collected and burnt, for the purpose of extracting the glittering specks with which it is variegated. Finally, the crucibles themselves will be pulverised, and every atom of gold absorbed by them will be regained. The bars are now of a rectangular form, their dimensions being as follows:—

	Length.	Breadth.	Thickness.
Sovereigns bars	24 in.	$1\frac{3}{8}$ in.	1 in.
Half sovereign bars .	24 „	$1\frac{1}{8}$ „	1 „

Next, they are stamped with numbers indicating the crucibles from which they were poured, and with letters representing the day on which each melting took place. A small portion is cut from each bar, to be again passed forward in marked papers to the assayer's office. That official once more tests the quality, and reports upon it. If found of the proper standard, the whole batch is carefully weighed, and delivered over to the chief coiner, or his representative, for subsequent manipulation in the coining department. The accompanying illustration will give a yet clearer idea of gold melting.

Before leaving the melting-house, it may be well to look into the apartment in which silver bars are produced. Here a similar plan is followed to that already described; but the arrangements are on a more extensive scale. The silver ingot, as it reaches the Mint from the bullion dealer's, is of gigantic size as compared with the ingot of gold. Its length is thirteen inches, its width five inches, and its depth or thickness four inches. Its weight is 1,000 oz., and its value £250. They are deposited in companies of three in wrought-iron pots, which rest in furnaces of greatly larger size than those already referred to. The pots are of circular form, and furnished with lips or spouts, to facilitate the pouring of the metal. The alloy introduced is copper, in the proportion of 18 parts to 222 of fine silver, which mixture constitutes standard silver. The preliminary and subsequent assays are taken with even a greater amount of care than that observed in the case of gold.

A swing-crane and a pair of strong nippers are used for lifting the pots from their fiery beds when the metal is sufficiently fluid for pouring, and each one is placed gently in an iron "cradle," easily tilted by means of an ingenious mechanical arrangement. The moulds, fitted together in halves, and braced firmly up in sets on travelling carriages, are advanced below the cradle. This is then inclined, and a rich and cream-like stream falls into mould No. 1, the pourer noting by the sound—as a bottler of old port does—when his vessel is sufficiently full. A workman pushes the mould-frame forward, and No. 2 takes in its quota from the lip of the pot; so with No. 3 and No. 4, &c., until the pot is empty, and many moulds are full. More ingots and alloy are charged into the pot, it is lifted per crane, swung round, and again seated in the furnace, another being drawn up, with its cargo of molten metal, to pass through the same ordeal of conversion into bars; and thus the work goes on from morning till night, the yield of a day's operations frequently reaching two tons' weight. Of course, the bars vary in size, in accordance with the particular denomination of coin to be produced from them; but they are all rectangular in form, and their exact dimensions and weight are as shown in the accompanying table:—

GOLD MELTING.

Denomination.	Length.	Breadth.	Thickness.	Weight.
Florin bars . .	21 in.	2·12 in.	1·00 in.	220 oz.
Shilling bars .	21 „	1·43 „	1·00 „	150 „
Sixpence bars .	21 „	1·12 „	1·00 „	120 „
Threepence bars	21 „	0·87 „	1·00 „	96 „

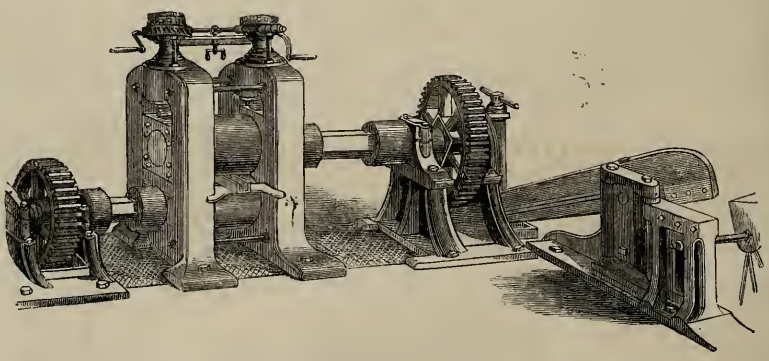
These denominations of silver coin have for some years past comprised the whole of the British series for general circulation. The crown, half-crown, and fourpence are now unknown in the Mint, except when worn specimens reach it from the Bank for transformation into the more favoured pieces named above. They are, therefore, dying a natural death from old age and hard work.

Metal for bronze money—pence, halfpence, and farthings—the composition of which consists of 95 parts copper, 4 parts tin, and 1 part zinc, is cast in crucibles, and run into moulds, precisely as if it were gold. The resulting bars are, however, broader and thinner than gold bars; and being much harder than either gold or silver, they give more trouble at every stage of their progress. They are respectively of the following size and weight:—

Denomination.	Length.	Breadth.	Thickness.	Weight.
Pence . . .	24 in.	2·50 in.	0·37 in.	100 oz.
Halfpence . .	24 „	3·00 „	0·37 „	117 „
Farthing . .	24 „	3·00 „	0·37 „	117 „

The bars resulting from each day's melting having been duly assayed, are weighed exactly, and their weights are noted down in the journals of the department. They are then returned to the central office, passed through the scales once more, and delivered into the charge of an officer of the coining-rooms. Soon they find their way by truck and tram to the great rolling-room, which is an apartment of noble proportions, and remarkable as being surmounted by the first *iron* roof of any magnitude erected in the metropolis. It contains six sets of mills, each comprising a pair of rolls, the largest of which are 14 inches in diameter and 24 inches in length, and the smallest 10 inches in diameter and 12 inches in length. They are all set in motion by means of massive shafts and gearing running in stone trenches, and driven by a 40-horse power steam-engine. There are also two pairs of revolving steel discs working edge to edge, and which cut metal into strips of any width with as much ease and with more precision than a draper cuts calico or cambric. A pair of vibrating shears of great strength constantly opens and shuts ponderous jaws, and snips off the ends of gold and silver bars with wondrous readiness. Four annealing furnaces, with numerous trucks and appliances of various kinds, mechanical and otherwise, make up the fitments of the apartment. While we have been examining these, the officer in charge has been again weighing his batches of bars, and this time for the purpose of checking any tendency to dishonesty which might exist on the part of the workpeople in dealing with a material so valuable, and which will presently have to pass through several transmutations. By ascertaining precisely—to the $\frac{1}{100}$th part of an ounce, in fact—the amount of metal distributed for working, the officer will, of course, know what amount should be returned to him at the close of a day's proceedings, when he has to strike a balance, and deposit the whole of the gold, in whatever form, in a doubly-locked and fire-proof stronghold.

It has been said that there are six pairs of rolls in the great rolling-room. The surfaces of these are as hard as steel and as bright as mirrors, and they revolve in bearings of brass resting in huge cast-iron frames. The most powerful of the "mills," as they are termed, is that to which the rough bars are first introduced, and wherein they undergo their first transformation. In order to make the action of these laminators more clearly understood, it may be well here to resort to the pencil of the artist, and to introduce an illustration. It represents the breaking-down mill and vibrating shears. The rolls are shown as supported between their side frames, and surmounted by adjusting-screws and crank-handles for moving the latter. The lower roll revolves in bearings fixed on the beds of the frames, whilst the upper is movable upwards or downwards at the will of attendants, and by means of the screws and handles. It will thus be perceived that the distance at which the rolls are placed from each can be regulated to a very great degree of nicety. In fact, *indices* placed at the top of the adjusting-screws demonstrate their precise distance at any moment. The bars, it will be remembered, are, when they leave the moulds, one inch in thickness. The problem is to reduce them, by gradually-administered pressure, to a thinness of about $\frac{2}{10}$ths of an inch. As the rolls are driven in opposite directions, they have an acquisitive tendency, and a desire, as it were, to pinch and laminate everything offered them for that purpose.



BREAKING-DOWN MILL AND VIBRATING SHEARS.

Thus, then, all is prepared for the first rolling. One workman is stationed in front of the breaking-down mill to supply it with golden food, and another behind it to catch that food as it is ejected. The bars (or a detachment of them) are placed on a truck close at hand. One by one the bars are now "offered" to the rolls, which have no hesitation in accepting them. They pass rapidly between the bright surfaces, receive a pre-

* Continued from page 102.

liminary squeezing, and are extended in length at the expense of their thickness. When some fifty or sixty bars have undergone this ordeal, the rolls are made to approach each other more closely, and the whole batch is again singly passed between them. The bars are now sensibly elongated, whilst another effect of the severe pressure has been to heat them—they having been originally stone cold—and the workmen don thick leather gloves, so as to handle them without inconvenience. Again, the rolls are adjusted, the space between them being made less, and the bars are passed between them once more. Indeed, these operations are repeated, until what were originally bars are now strips or "fillets" of gold 8 feet in length, $1\frac{3}{4}$ inches in width, and $\frac{1}{8}$ inch thick, and, of course, they are rather unwieldy in their proportions. They have also become intensely hard by force of the series of compressions to which they have been exposed. Both these evils have to be remedied before another step in the process of coining can be taken. The first is cured by aid of the shears, as seen in the engraving, and the whole of the strips are speedily cut by them into short lengths of eighteen inches each. Like some criminals, however, the dwarfed bars are still hardened and obdurate, and they must be annealed before further impressions can be made upon them. In order to effect this, they are placed in copper cells or tubes, upon the ends of which covers are afterwards placed, the joints being made tight by lutings of fire-clay. Five such cells fully charged with the reduced bars are placed upon a small iron carriage on miniature wheels, and which may readily be backed into an oven or furnace, on the reverberatory principle. In front of the oven, and balanced by a counterpoise weight, which admits of its easy motion up or down, is the oven door of iron.

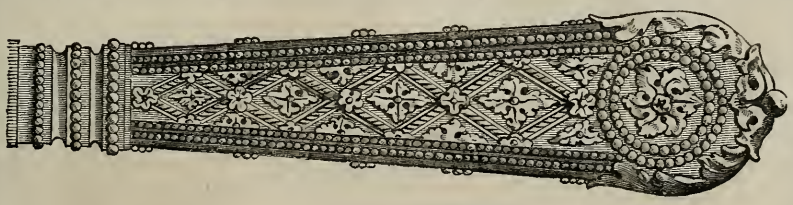
HANDLE OF KNIFE.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

CARVED KNIFE-HANDLES.

These are elegant specimens of art as applied to minor objects. The design intended for the handle of a paper-knife will show the manner in which ornament might be effectually employed in the manufacture of handles, either in wood, ivory, or metal, for paper-knives. It will be seen that there are no sharp projecting points, which might injure the hand or be broken off, and that the whole of the carving is done in low relief, which prevents the strength of the handle from becoming weakened, and admits of the interstices being thoroughly cleansed—this latter being an important consideration. The style of ornament, too, is modest and unobtrusive. The handle of the dessert or dinner-knife is of a bolder pattern, less elaborate, and to some extent less effective, than the other design, yet equally suggestive and tasteful. Both are creditable examples of the present condition of this branch of art industry.



HANDLE OF PAPER-KNIFE.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

In mentioning the clubs which have been distinguished by their hitherto successful career, I inadvertently omitted those at Edinburgh and Glasgow, which, I believe, have been uniformly and eminently, so far, useful and flourishing. The movement in Scotland dates from the meeting of the Social Science Association at Edinburgh in October, 1863, and is extending through that country with remarkable rapidity and success. I hope to have some interesting statistics before very long to present from our northern cousins.

Passing now from the topics treated of in my last paper relating to the causes of *success* and *failure* in these societies, we come to one of vital importance. Next in order to the need for a genial welcome, and for providing attractions to the Club, as set forth in that paper, comes the necessity for cherishing and developing the "society" spirit—the need of brotherhood, in fact—that spirit which has been at the heart of all true civilisation and of all successful *corporate* action from the Dark Ages when men had to form leagues for mutual protection by the sword, down to the age of Friendly, Trade, Temperance, and Co-operative Societies. But to get this spirit of cohesion and of mutual helpfulness in a Working Men's Club and Institute, on what are we to rely? Persons who have seen the power with which it has been manifest in Religious, Political, Trade, and Temperance organisations, say we never can awaken it in these Clubs, because there is no common bond of interest and sympathy, no motive power strong enough to arouse enthusiasm and zeal. Well, if there is not—if they are merely places where the members may go for a little individual or selfish amusement and rest—I grant they never can become real societies. But then I must equally grant that, in a great majority of cases, they are destined to have but a brief existence. Twenty years hence, in a few large towns, they may exist on the same footing as the gentlemen's West End Clubs, but they will not take root *now* on that footing among the great body of the working classes, nor probably at any future time. Can we find no true and natural living bond of union for them—some principle and object that shall be capable of cherishing and unfolding that divine spirit of fellowship and sympathy which is mightier to bind men together than all their selfishness and discords are to rend them asunder?—something that shall make them *societies* to which men may belong, and not merely *places* to which they may go? It would be weak and shameful to doubt it.

That uniting and inspiring principle will be found, I believe,† by reflecting on the various social, mental, and moral privations under which the working classes at present labour, and on the means offered by these Clubs for supplying those wants. I can best explain what I mean by quoting from a paper read at the Social Science Meeting held in York, 1864. I had been speaking in it of the impulse given by the Rev. F. D. Maurice and his noble coadjutors, to the movement for educating and helping working men by the establishment, in 1854, of that admirable institution, the Working Men's College, whereof so interesting an account has been given by Mr. Rossiter in this journal.

"The specialty of Mr. Maurice's labours in this direction—that which makes them mark an era in the history of the working classes, and exert so deep and wide-spread an influence—is the development and application of the grand old idea of a brotherhood for the completest culture possible of its members as human beings—*for their whole development as men.* He and his friends came to the working classes, suffering as they do from their imperfect early education, and from their contracted and often deadening daily toil—came to persons, in fact, who are often reduced nearly to the condition of machines—and said, 'We want to help you, and want you to help one another, to be men; to attain to that humanising culture and happiness, and to that noble, manly development of mind, and body, and spirit, for which you were created. For this purpose, we must have a true fellowship, mutual social sympathies, regular and earnest educational effort, a Bible-class, gymnasium, library, coffee-room, occasional lectures, *soirées*, and so forth. Will you work with us?' It will be sufficiently evident, I think, how this London Working Men's College, therefore, differed from all Mechanics' Institutions, People's Colleges, Mutual Improvement Societies, &c., that had preceded it. Its influence, which has already been felt through various ranks and in several localities, is evidently destined to increase, like most great vital forces, with the lapse of time."

But all this applies to a Working Men's Club as much as to a College—*i.e.*, if the Club is to *live*. For if it lives, it must have a principle of life, and that will assuredly make it develop and grow into such a society as above described. A true Working Men's College is simply a Working Men's Club in an advanced stage of existence. In the said paper I went on to urge that just as the *fellowship* or brotherhood of a College, on the one hand, and the *completeness* of its aim on the other, constituted its vital force, so these must be the vital element of power in Clubs also. Unquestionably we may "have Reading-rooms, Night Schools, Lectures, Mechanics' Institutes, Mutual Improvement Societies, on the one hand, and we may have Recreation Shops, Talking and Smoking-rooms, Penny Readings, Concerts, and Free-and-Easies on the other. And you may have all, or any of these combined under one roof, calling the establishment a Workmen's Hall, a Working Men's Institute, or a Working Men's Club, and the said establishment, or any of the separate agencies, will undoubtedly do more or less good while it or they continue. But to start or promote them, however useful and laudable in particular cases, and as preliminary steps, is not the real work now before the social reformers and friends of the working classes of this country. That work is to help bring into being *organic bodies with a living soul in each*, all forming part of a larger organisation which should be filled with a yet higher vital force. You want societies, brotherhoods, inspired with the same noble idea as that which I have attributed to Working Men's Colleges, aiming at the completest culture and development of the mental, physical, and spiritual life of the members which may be possible under the given conditions, yet beginning with the humblest and simplest agencies, meeting the actual social wants of the least cultivated, while offering the means of gradually increasing cultivation as they may be willing and prepared to receive it."

Who will deny that here we find a principle and an object capable not only of binding men together in a permanent organisation, but of inspiring them with that earnestness—even enthusiasm—which I not only admit, but earnestly contend, must be called forth to make a great enterprise successful? And considering how vast and deep must be the nature of such an organisation as is described in the above quotations, we must not wonder that a grand, far-reaching principle and aim should be needful to fill that organisation with life and power.

If it were asked why Working Men's Clubs

* Continued from page 86.

† It must be remembered that in these pages I can speak simply of human agencies, and with only an implied and tacit reference to that which is Divine.

should aim at so much more than gentlemen's clubs, the answer is evident. In the first place, gentlemen have a more liberal and thorough education than working men, not merely at school, but from the mental atmosphere in which they move; and secondly, they have a great variety of institutions, as well as access to a large number of artistic, literary, and scientific influences from which working men have been shut out, and which can be supplied to the latter most effectually by a well-managed club and institute. Persons in the middle and upper ranks, in short, not only have "far greater means and leisure for continuing at home or in the world that culture which they have received at school, but their occupations often have more of a humanising and educational character than the mechanical handicrafts of the working man, while their homes admit of that social intercourse and interchange of visits from which the working men, at present, are precluded by their very limited domestic accommodation. Gentlemen are, in fact, in a position to make their club minister to higher culture when they join it; working men, on the contrary, often need the very culture which alone would make their club profitable to them. Hence there is a far greater number of wants requiring to be satisfied by these clubs, in the case of the working men, than in that of the gentry. On the other hand, a proportionately greater vital force is required to lift working men, and to help them lift themselves, out of the various evils, temptations, and hindrances—social, physical, and moral—which now oppress them, than is needed merely to supply certain simple wants, already felt and recognised by persons perfectly able and willing to help themselves. That force can only be found in great principles working through suitable and varied organisations." *

The only other important point I would now advert to in connection with the causes of success and failure in clubs, before alluding to particular instances of each result, is the advantage of having societies for promoting the *pecuniary* well-being of the members connected with a club. Whenever a room belonging to it can be let to a Friendly, Provident, Co-operative, or Building Society, this not only helps to pay the rent, but draws the working men of the neighbourhood to the club. It is, however, still more useful and important to get the members themselves to form such societies (if they do not already belong to any), to start a "Friends of Labour Loan Society," a Coal club, and so forth, limiting, in general, the advantages of the society to those who are members of the Working Men's Club and Institute. Action of this kind is both a cause and effect of three distinct benefits to the members, naturally resulting from the club:—1st. The becoming interested in other matters than the pot and pipe, and mere animal enjoyments, which have too often been the only things many working men have cared about. 2nd. The saving money, and adding to home comforts—especially laying up against a rainy day—ultimately, perhaps, obtaining the advantages of capital as well as of labour. 3rd. The cherishing that spirit of mutual helpfulness which has been constantly urged as a primary element in the success of these clubs, and one of their principal objects. But in addition to all this, such commercial societies (so to term them) have a powerful influence in binding the members not only to one another, but also to their club, and often furnish the strongest attraction for retaining men in membership.

The truth is, that the wants, tastes, and circumstances of working men are just as various as those of the classes above them; often much more so, on account of the greater incompleteness of their education and development. Hence a club must meet this great variety of taste and want, if it is to have any considerable number of members. Some must be attracted by the amusements; others by the social companionship; some by the reading-room, library, and classes; others by the Provident and similar societies; some will care chiefly for discussion meetings; others for the "free-and-easy," or concerts.

But, whatever the original inducements to join, able and zealous managers will always endeavour to bring the members of a club to care about its other useful and interesting operations.

Before, however, we can effectually investigate the causes of failure or success in individual Working Men's Clubs and Institutes, we must never forget one important distinction to which I have not yet adverted—viz., that a club may have been eminently successful in benefiting its members, and improving the whole condition of the neighbourhood, yet have failed to make both ends meet in its financial department. On the other hand, a club may be entirely self-supporting, and yet be doing very little good. The latter case would, in general, only occur when a building has been presented rent free to the members, or when a special source of revenue is largely prolific (such as the profits from bagatelle boards, or entertainments of a low character), which might bring in a good deal of money, without promoting the well-being of the club and its members.

* "Possibly the clubs of the upper classes may find that they have an important lesson to learn from those of the working men. It is said that some of them are already beginning to feel the want of more sociability among the members, of some more definite bond of union."

Master and Servant.

We have, in former numbers of the Working Man, explained the relations of master and apprentice, and the provisions of the law affecting them.* We purpose now to place before our readers a similar outline of the law respecting master and servant generally, and the obligations it imposes on each in his conduct towards the other. In doing so, we shall more particularly, although not exclusively, refer to that class of service which is entered upon by the great body for whom our publication is designed—the working men of the kingdom—among whom, we are sorry to say, there exists to a very large extent the want of a general knowledge of the principles of the law concerning employer and employed.

Every person who undertakes, for payment, to perform any kind of service for another, to assist him in any part of his trade or ordinary affairs, is styled by the law his *servant*. The term has, therefore, a far more extended application than that in common use, where it is chiefly applied to one engaged as a domestic. It is in this wider sense that we shall have to use the term when speaking of persons employed, no matter what may be the nature of the employment.

The subject is an extensive one, but for the present we shall confine ourselves to

THE ENGAGEMENT.

An engagement or contract of service may be either written or verbal, and may be made by the party who is to serve, either with the master or his agent. Any person who holds such a situation under the master, that by common practice he would be presumed to have power to engage other servants beneath him, is held to be his agent, and an engagement made by that person is as binding on the master as if made by himself. Thus, a foreman of works who may take on additional hands, is presumed to do so with the master's authority, and the master must pay them, unless he has expressly made known his refusal to recognise such an engagement before it has been entered upon.

The contract may be for any period of time, at the pleasure of the parties; but if the service is to last for more than a year, or for a year to commence at any future time, it must be in writing, or it will be invalid. Thus, if a person engage on the 1st of January for a year's service, to commence *on that day*, no writing will be necessary; but if he enter into an agreement on the 1st to serve a year from the 2nd, or any future day, it must be in writing, and signed by both parties, or neither will have a remedy for breach of contract.

In the absence of any understanding to the contrary, either expressed or implied, it is a rule of law that the contract shall continue for a year, but be determinable by a month's notice on either side, or, at the master's option, by payment of a month's wages. This, in fact, makes the service one from month to month. But although this is the general principle, and applies especially to the case of domestic servants, yet in other instances the duration of the contract, and the notice to be given, depend in great measure upon the *custom* in the particular trade or employment. That custom is presumed by the law to be understood by both the parties to the agreement, and they are therefore bound by it, unless a contrary stipulation has been made. In some trades, a weekly engagement and a week's notice are customary; in others, a fortnight's; some employments are, according to usage, for a certain season; others, again, from year to year. But the custom or usage, whatever it may be, is of no account where the parties have mutually agreed to abide by some other condition.

In case of an action at law for breach of contract, the court will not require evidence to prove the rule of a month's warning or a month's wages. But, with respect to any trade or occupation where the practice is other than this, witnesses must be brought forward to prove the usage.

A trade custom, besides affecting the duration of a contract or engagement, may decide some other of its conditions. For instance, where a master may have agreed to pay his servant so much "per thousand," evidence may be brought forward to show that by "a thousand" either a greater or less number was meant or understood in the trade. The parties, in all cases, are supposed to have contracted according to the established practice.

Where an engagement is proved to be, by usage, of a certain duration, and to imply a certain term of notice, the circumstance that wages are paid at more frequent intervals will not affect the contract. Thus, a month's or a fortnight's notice must still be given in cases where that may be the custom, although the wages may have been paid weekly. The same rule holds good with respect to contracts for a longer period.

The engagement or contract, whether written or verbal, gives the master a *right* to the service, and a claim to damages for losing it. It is not necessary, in order to establish this claim, that the service should actually be entered upon. And as, in some cases, the master would really have no pecuniary remedy by an action for damages, when the servant either refused to enter the service after having agreed to do so, or left it without due notice, the magistrates have the power in such cases to punish the delinquent servant for breach of contract by imprisonment. Any one who entices a servant from his employment, or induces him to break his engagement, is also liable to the master's action for damages; but in order that the action should succeed, it is necessary that the master should be able to prove that the person enticing his servant away was aware of his engagement. But the master cannot bring an action against another for inducing his servant to leave, after notice duly given and expired. An action will "lie," or be maintainable, for inducing a servant to leave *piecework*, as well as employment for a definite time.

The contract of hiring may comprise protective clauses in the interest of the master, that the servant shall not, after the expiry of the agreement, enter into the same trade or business within the neighbourhood, or a reasonable distance thereof. But the law will not recognise an agreement, or that portion of one, which attempts to bind the servant to an unreasonable extent. For instance, in a case where the servant had undertaken not to set up in business, after his service, either in London or any other town in England, the court held that so much of the contract as related to the metropolis was valid, but declared the remainder void.

An agreement, whether written or verbal, may be rescinded by word of mouth, or a new and substituted agreement entered into in the same way. But where the original contract has been in writing, it is best, as a rule, to have any alteration of it in writing also, as in that case it is more capable of proof should the matter come in dispute. Where only one party possesses the contract in writing, the other having neglected or declined to take a copy of the document, and any dispute arises, the person possessing the contract may be required to produce it in court. In case of refusal to bring it forward, the party requiring it may state its contents; and the refusal alone would probably be as damaging to the defendant, in the minds of judge or jury, as the clearest evidence of delinquency from perusal of the document.

We have now said all that appears to be necessary, in this outline of the law, as to the general contract of hiring. We must ask our readers, who may be particularly interested in the matter, to look carefully at the principles here laid down, which will be found to meet a great variety of cases that constantly arise in every-day business.

* See "Apprenticeship: its Rights and its Duties," in Nos. 3 and 4.

Honest Labour v. *Burglary.*

I sometimes occupy the quiet half-hour between supper and bed-time with a dip into the newspaper. I have not a very voracious appetite for news; but, of course, I like to know something about what is going on in the world, and occasionally my attention is arrested by the report of a trial involving something more than matters of scandal, which, indeed, I would rather be unacquainted with. I hear and see quite enough of the wickedness of the world without desiring to hear any more; and wish in my heart that a veil could be drawn over the faithlessness and open profligacy, the records of which occupy such a large portion of our newspapers. But the report of an action brought by a jeweller, in Cornhill, against the maker of an iron safe, referred so directly to matters within my own experience, that I went on reading. We all must remember the burglary which was so much talked of a year ago, and which was so carefully planned and ingeniously performed, that the perpetrators would have escaped detection, so far as any police investigation was concerned, had it not been for private spite, which afforded information otherwise unattainable.

I know something—as much as most, indeed—of the strength of metals and the principles of construction; and I never expected that any safe could successfully resist the patient application of skill and strength, aided by proper tools. So, of course, I was not very much astonished when the convicted thief told the Court of Queen's Bench that, having first applied a wedge, and then a crowbar, he had prised the safe open. But I was astonished to hear him complimented on his cleverness—of course, with a mild expression of regret that his talents had not been applied to a better purpose. What did he do, after all? He hid himself in a house, actually left open for his reception, and then, having time, skill, and proper implements, he did rather a neat piece of blacksmith's work! There is hardly a man in our shop who could not have done the same, if the job had come before him in an honest manner. There is nothing clever about it.

But he must be clever, I suppose, because to a certain amount of mechanical skill he adds fluency of speech and audacity. Here again I could match him out of the circle of my immediate acquaintance. I know many young men who frequent debating clubs, and judge and jury societies, who have a natural fund of humour, which is sometimes uncommonly like impudence, and who, by constant practice, have so cultivated what George Stephenson called "the gift of the gab," that they astonish their more silent shopmates, who know they are right in the view they take of matters in dispute, but cannot easily put their ideas into fitting words. Caseley, the convict, who is so very "clever" and interesting, appears to be one of this sort, adding roguery to flippancy, and to be a victim to that peculiar sort of laziness which takes ten times the trouble to shirk honest work that the work might be done with.

And how hard these scoundrels *do* work after all! and how very poorly they get paid for it. I should not like (my sense of right and wrong out of the question) to hang about night after night, for several weeks, to watch an opportunity for theft, at the risk of being caught in the fact, and with the almost certainty that, sooner or later, I shall be detected, and pass a great many years of the best part of my life in a convict's garb, living on convict's fare, doing a convict's miserable work, and associating only with scoundrels guilty of every crime of dishonesty and violence.

Honesty *is* the best policy. It pays best in the long run. It ensures peaceful living, and a peaceful end of life; it procures, with industry, moderate competence, and makes yourself and your memory respected. Dishonesty is not clever—it is short-sighted, unreasoning, and essentially foolish. I remember an etching by brave old George Cruikshank, in which he depicted rogues of every degree as fools with caps and bells. So they are: fools, who, gifted with fair mechanical skill, and passable powers of application, set to work to carve out for themselves a passage to Newgate and the convict hulk.

I want to hear no more of such cleverness. There are thousands, as I have said, with equal manual skill, who are wise enough to labour honourably, and enjoy in peace the fruits of their toil. Perhaps they may not be publicly complimented for their cleverness; but their conscience will approve the use they have made of the talents entrusted to their care.

Fish and Fishmongers.

Regret has often been expressed at the subordinate place which fish takes as a staple article of food in the daily consumption of the people. It is felt to be regarded rather as an adjunct to the principal meal of the day, than as an all important dish; a delicacy to be enjoyed, rather than a kind of sustenance to be depended on. But it is just possible that the wholesale destruction of our bovine stock through the rinderpest, and the consequent increase in the price of all kinds of meat, may compel many to turn to fish as a substitute for flesh, seeking in the food furnished by our seas and rivers an aliment more suited to their means than the steak, the chop, or the more pretentious "joint" seems likely to become. In any case, the supply and sale of fish is a subject worthy of our best consideration.

The question of the supply of fish naturally leads one to Billingsgate, the great metropolitan fish market; and what Billingsgate is like has been told again and again, nor is it now changed in any essential feature from what it formerly was. A sloppy, slimy, fishy Babel it is, with an odour, pungent and oleaginous, which catches you by the nose as you pass the Monument, descending Fish Street Hill, and never relaxing its hold till you reach Tower Gate. Not that this odour is precisely offensive, but it is strong and obtrusive, and not to be shaken off, even long after you have left the precincts of the spot where it has its seat. It penetrates into your hair and the cloth of your coat, like the smell of tobacco, and clings to you with equal tenacity.

Then, if Billingsgate is not inodorous to the sense of smell, neither is it picturesque to the sight. Everything there is for use, and very dirty use, too; and, consequently, Billingsgate dresses in coarse woollens, and leathers, and oilskins, and covers itself with wide-awakes, and billy-cocks, and sou'-westers innumerable. And Billingsgate is hustling, and shoving, and corn-treading, and more especially loud-voiced and vociferous, and withal not unmusical. Billingsgate shouts and roars, and rolls its voice like the billows of the sea, as it gives forth its auction-bids, or holds aloft its baskets of live plaice to cautious buyers. Billingsgate, no doubt, could be vituperative if it liked, and on occasions is so, but as a rule it is not. It may be noisy, but it does not, therefore, follow that it is abusive; and Billingsgate has got too much to do to mind its own business to trouble itself about wasting language, much less bad language, for unnecessary purposes.

Altogether, Billingsgate, although startling, and even deafening, to a stranger; though it bewilders you by its crowds, its hustling, and its confusion of boisterous tongues; though it steeps you in fishiness for a whole day after your visit; and although there are no picturesque Masaniellos or attendant fishermen to give a dramatic character to its exterior, and everything connected with it is plain, blunt, work-a-day, and of all things sloppy and sticky, it has a character of directness, of broad practicability, of unstudied, honest usefulness.

In some points less, yet, on the whole, greater than ever, Billingsgate market maintains its position as *the* fish-market of the United Kingdom. It has no longer its tier upon tier of broad-bowed coasters, waiting for their turn to disgorge their full holds, or water-wells, of their contents; and it is no longer the centre to which all the produce of the neighbouring, and even of distant seas, is brought, to be thence distributed throughout the kingdom; but if it has in so far "suffered a sea change," the railways bring more fish to its net now than all the old water-tubs that ever floated did before. By means of the railways, the modern cutters, and the two or three steamboats which serve as carriers between Gravesend and Billingsgate, collecting the several "hauls" of numerous fishing-smacks, the market is better supplied with fish than ever. Fish, as a perishable commodity, must be brought quickly within reach of the purchaser; and the fishermen, instead of beating round the coast at the mercy of winds and waves, in their endeavour to bring their freight to market as formerly, now keep to their proper business of catching fish, and leave the carrying to more competent hands. Thus the fish—in the first case more carefully preserved by the application of ice when caught—are sent up to market by rail and steamer, and Billingsgate receives it for general distribution, not only more abundantly than before, but in a fresher state, and, therefore, better fit for food. Of course, thousands of tons of fish are now distributed over the country which never come to Billingsgate at all, but are dispatched direct from the sea-coast by rail to the principal towns inland; and in so far Billingsgate may be said to have lost some part of its business. But this loss is more than compensated by the greater supply furnished through increased facilities of transport.

How many tons of fish, then, pass daily through this great emporium of sea produce? Upon this point Billingsgate is lamentably silent. There are no returns given; no data kept from which a computation can be made. This fish market is not like a meat market, or a corn market, or a hay market, with regard to any one of which exact records are kept of all that passes in or out of its gates, or market-place. There is a sort of independence about Billingsgate which defies arithmetic. Beyond the payment of their stall, or shop-rent, no one but the individual concerned seems to know how much or how little business is done.

The reply to questions upon this head is that any such return is impossible. The question is met in perfect civility with a negative, and it is argued that the entries are so various, and arrive from so many sources, that any accurate return of the whole is a thing not to be done. So, also, with regard to the average price of the goods sold, Billingsgate is dumb. One may learn any day the current prices of meat at the Metropolitan or Newgate Market; the quotations of corn in Mark Lane; but Billingsgate is above quotations, and buys and sells as it likes, and tells no tales. Again, it is said that any authoritative price-list of any one market-day cannot be given. The value of fish of the same size, weight, and—to an inexperienced observer—quality is so different, and the transactions so multifarious, that no general conclusions can be drawn as to price. One is at liberty to perambulate the market, and to take a stand at any one of the impromptu stages at which fish auctions take place. There is very little parade and very little ceremony. The auctioneer, who is, most probably, the owner of the fish he sells, does not study appearance; but book in one hand, and possibly the other curled round his mouth, and resting against his cheek, in order to give his voice additional depth and force, announces the upset price, and repeats the several biddings with a power of lung which would do honour to the master of a kennel, when giving the view-halloo.

Perhaps the basket of plaice, crammed as it is to the top, so that the lid is held down by cords, and is still a long way from closing, and which a labourer carries on his head for public inspection, may be sold for 4s., 5s., or 6s.; but its weight, and the number of fish it contains, no one can tell but the seller and the purchaser. Only recently, the *Times*, in a leading article, asserted that the fish sold at Billingsgate Market fetched, on an average, £4 10s. a ton, which assertion was met by a correspondent, who claimed to be a constant buyer at the market, by the statement that on no occasion had he paid less than 7 guineas, and that more frequently his outlay had been as much as 50, 60, and 70 guineas a ton. So much for averages.

To a superficial observer there would appear to be no great difficulty in keeping a tally of all fish brought into the market for sale, or even of the current rates per day of the principal kinds of fish sold—and such a record would be valuable; but it is quite evident that no such return will ever be made by the voluntary efforts of the market authorities. That an approximation to the real amount of sales is possible, is evidenced by some few isolated facts in regard to salt fish. It is stated that 12,000 barrels of salted cod are brought to Billingsgate from Holland and Scotland during Lent, and sold to the London consumers; and that 500 tons of "split fish"—or dried cod, from Newfoundland—are disposed of during the year. Another little item is the amount of smelts brought from Holland, which is estimated at 1,200 baskets a week. We might imagine, with these data before us, that some general estimate of the total amount of fish bought and sold might well be rendered.

(To be continued.)

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

FEBRUARY 24, 1866.

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The Proposed Franchise of Intelligence.

At length—so it seems—a formal attempt is to be made to give intelligence legal recognition in England. Mr. Clay, M.P., has announced his intention of proposing that political enfranchisement be extended to such of the people as may possess an ascertainable amount of actual knowledge. The proposal comes, oddly enough, from the sea-coast. We should have thought it was likely to originate inland, and nowhere else. It turns out that Mr. Clay's proposition smells strongly of the sea. It none the less deserves a welcome for that. The examination that serves to give a tide-waiter his credentials of office is, we understand, Mr. Clay's idea of what might suffice for the suffrage.

It is not our intention to enter upon any criticism of a question of party politics. We limit ourselves now, as in a former article, to what is admitted on both sides of the House of Commons—namely, that the suffrage may usefully be extended so as to include some portions of the working classes; though what portion, to what extent, by what methods, or for what reasons, are points on which no common agreement as yet exists. All that seems to be agreed upon is, that the Government ought to deal with the question, and that their plan, whatever it is, is to take precedence of all others.

The Government plan is sure to propose a limited extension by a method well known—namely, by permitting a lower household franchise. Mr. Clay proposes not to touch this plan—which will go but a small way. Earl Russell always prescribes very short journeys for the improvement of John Bull's political health. The stout patient is always treated as being in a very critical condition—undoubtedly plethoric, congested, and incapable of bearing the slightest excitement. Mr. Clay, being well aware that the Government Bill will omit the great bulk of the people, proposes to make an addition to it. He would enact that a knowledge of writing, spelling, and the four rules of arithmetic and their compounds as applied to money only, be deemed a qualification for the franchise. This is the examination to which out-door officers of the Excise are subjected. This plan is nearly as simple as that suggested by Mr. J. Stuart Mill.

Some time ago a proposal was made in a brief series of letters addressed to Lord John Russell, of an intelligence franchise of a different description, and which promised more obvious fitness in the elector for the discharge of civil duties. This plan involved an examination as to the general knowledge the candidate for the franchise had acquired in the elementary principles of Political Economy and English Constitutional History, from the perusal and study of two small volumes upon those subjects. It would be possible for any person to acquire this information, and everybody would be the better who had it. As a workman, he would become aware of the social laws affecting his labour; as a citizen, he would understand the political law affecting his liberty.

In the case we have just referred to, and that of Mr. Clay, the proposal is made in a practical spirit, being put forward merely as an addition to the Government bill, and not instead of the existing franchise, or of any extension of it, but only as a supplementary mode of extending the suffrage in a gradual manner, as fast as the public intelligence increases. Nobody professes to be afraid of intelligence; nobody, therefore, ought to be afraid of such a plan as this. It would have the merit of giving an entirely new interest to schools, mechanics' institutions, and every form in which the intelligence of the working class is sought to be promoted. In fact, it would give political interest and importance to innumerable educational institutions that now languish. Every friend of the working class would have a new motive for promoting their education. To make them citizens would be to make them wiser. The franchise could do them no harm, and the knowledge would be sure to do them good. To give a man a vote because he lives in a £10 or £6 house is all very well as far it goes; but it is very much like giving a suffrage to bricks instead of to brains. It encourages a gross materialism of thought, of which we have too much, and makes householding or money-getting the highest test of civic virtue. Every man cannot get richer at will. The most deserving often struggle in vain against the pressure of adverse circumstances. But every man can get knowledge who has the right will and moderate application. On all accounts, then, the proposal of Mr. Clay is deserving of commendation and support. Mr. Disraeli had the merit of being the first English statesman who ever proposed to politically recognise knowledge as a qualification for citizenship. His plan had not the popular merit of Mr. Clay's, but it had the merit of admitting the principle.

We are quite aware that there are difficulties to be encountered before any such plan will meet with ratification in the House of Commons. The electioneering agents are opposed to any scheme which is likely to throw their calculations into disorder. The slow increase of property can be estimated. The probable increase of £10 or £6 houses is known. The changes in the electoral balance, under a property qualification, can be foreseen. But no man can foresee the increase of intelligence. Batches of new electors would spring up every three months. New voters would appear in the solar system of politics, like new comets, and the Parliamentary astronomers would never be able to calculate their orbits. With this, however, we have nothing to do. It would be weakness, or imply defect of vision, to write upon this subject and betray no consciousness of these facts. Having recognised them, we may dismiss them to be dealt with by the politician. Our concern is with the principle of an Intelligence Suffrage: it is the most rational, creditable, and practical ever devised. So long as our statesmen do not take honest manhood as a qualification for political rights, but prefer to seek an artificial test of electoral fitness, then we must say that Intelligence is the most philosophical, fit, and useful. The principle gains strength and popular acceptance every day, and we do not despair of seeing Mr. Clay's proposal—which is to be the subject of a specific Parliamentary motion—grow into public favour. It concerns the interest of working men that it should be so. It will increase their opportunities of knowledge and chances of citizenship. It will enable a man to command his own enfranchisement in the way safest to the State and most honourable to himself—namely, by the exercise of thought, and cultivation of his understanding.

Representative Men.

I.—BENJAMIN WHITWORTH, M.P.

To the more thoughtful and enlightened class of employers, now becoming so numerous in this country, belongs Benjamin Whitworth, the Parliamentary representative of Drogheda. Few men have done more to win the respect and esteem of their fellow-countrymen than has Mr. Whitworth, and well is it for the interests of both capital and labour, that his services should have been so readily appreciated by those who have derived benefit from them. The fifth son of the late Nicholas Whitworth, of Drogheda, he was born in Manchester, May 24th, 1816. In 1820 he was taken to America, where he resided at Philadelphia until 1824, in which year he returned to Manchester. A few months afterwards he removed to Drogheda, where his father took up his permanent residence. In 1832 young Whitworth returned to Manchester, where, after much difficulty, he procured a situation in a warehouse, commencing with the magnificent salary of five shillings per week! Little dreamed young Benjamin Whitworth of the future that was in store for him. True, many would have calmly folded their arms, and desisted from further effort. Not so was it with Benjamin Whitworth. His heart was made of the right stuff, and when he planted his foot upon the first round of the ladder, he had already determined that he would do his best to mount a little higher. For six years he had to contend with difficulty after difficulty; and then, like many others of our self-made Lancashire men, he determined to commence business on his own account, in partnership with Mr. John Hoole. Their united capital amounted to £50—not a very large sum in the estimation of a Manchester *millionaire;* but then some of our merchant princes have begun with even less—so that Benjamin Whitworth and John Hoole were not without precedents in justification of the step taken by them.

The partnership was not, however, of very long duration; for in 1842 it was dissolved, when Mr. Whitworth, his younger brother Alfred, and subsequently, his other brothers, Robert and William, went into partnership with him. In 1843 he married, three sons and four daughters being the fruits of the union. In 1849 his health was so shattered by over-work, that he was advised to leave Manchester, and take up his residence at the sea-side. Choosing Fleetwood, he, for thirteen years, travelled constantly backwards and forwards between that beautiful Lancashire watering-place and the busy metropolis of the Cotton Districts. All this time Fortune was smiling upon his endeavours; and while at Fleetwood, he conceived the idea, afterwards carried out by him, of importing in his own ships cotton from America to Fleetwood. The attempt proved a remarkable success, and helped greatly to develop the trade of that port; but since the breaking out of hostilities in America, the traffic has entirely ceased. Mr. Whitworth is now, however, about organising it afresh. The importance of this trade may be estimated by the fact, that the charges upon cotton coming into Fleetwood do not exceed *one-sixth* of those enforced at Liverpool.

In 1863 Mr. Whitworth commenced, at Fleetwood, the building of the Whitworth Institute, intended principally for the use of his *employés.* It was completed and opened at the end of the same year, and promises to be useful and pros-

perous—being quite self-supporting. The cost to Mr. Whitworth of this institution was about £3,000. In 1864, he laid the foundation of a similar, but much larger building, in Drogheda—where Mr. Whitworth has large manufacturing establishments—which was opened in May last by the Lord-Lieutenant of Ireland.

The cost of this building, defrayed entirely by Mr. Whitworth, will be about £4,500 when fully completed. Much of the interest taken by Mr. Whitworth in the social improvement of those employed by him is attributable to the circumstance of his being a teetotaler. From his very infancy he has been an abstainer from the use of intoxicating drinks, and to his views on the temperance question may be ascribed his determination to build the Fleetwood and Drogheda Institutions, which are to be conducted on principles similar to those of the Working Men's Clubs—the idea of Mr. Whitworth, in building them, being to further the cause of temperance, by finding some means of rational and innocent amusement for the working classes. The institutions are supplied with billiard, bagatelle, chess, and draught boards, &c. There are also news-rooms, and, at Fleetwood, a good library.

Since Mr. Whitworth's return to Manchester, in 1862, he has been intimately connected with the "United Kingdom Alliance for the Suppression of the Traffic in Intoxicating Liquors," to the guarantee fund of which he has promised £3,000. On the dissolution of Parliament in July last, he was invited by a large majority of the influential electors of Drogheda to represent that ancient borough in Parliament. Consenting to become a candidate, the polling day found him returned by a majority of at least three to one over his opponent; so that the man who began life in a warehouse, at five shillings per week, now sits as representative of Drogheda in the British House of Commons! Who, after this, will despair of getting on?

Well did Mr. Whitworth merit the support of the men of Drogheda, for in that town he has built a large cotton factory, capable of holding 1,000 looms, and affording employment to nearly 800 hands, who will be at work within the next few weeks. This is better than Fenianism as a remedy for Irish poverty and social ills; and we trust that the present senseless Fenian agitation in Ireland will not have the effect of deterring others from emulating the beneficent example of Benjamin Whitworth. But we have not yet exhausted the record of his services. Drogheda had long felt the want of a plentiful supply of pure water. For twenty years Mr. Whitworth's father had agitated in favour of the want being remedied, but without success. Some time before his death, in 1845, he expressed a wish that his son would attempt to carry out his pet project. Of course, the words of his father were not lost upon Mr. Whitworth, and, in 1863, he made a proposal to the corporation to find the whole of the money required at 4½ per cent., or he would find one-half the money at 4 per cent. The corporation refused this offer, upon which Mr. Whitworth started a limited liability company to accomplish the desired object, at the same time agreeing to find half the requisite capital. The works are nearly completed, and are expected to be opened during the ensuing spring. The firm of which Mr. Whitworth is the principal is largely engaged in the fustian and velvet trade; also as manufacturers, at Kirkham, Accrington, and Drogheda. Mr. Whitworth is also considerably interested, either as a shareholder or director, in the Ashbury Railway Carriage and Iron Company, Limited, Manchester; John Brown and Co., Limited, Sheffield; Bolckon, Vaughan, and Co., Limited, Middlesboro'; the Stavely Coal and Iron Company, Limited, Stavely; the Sheepbridge Coal and Iron Company, Limited, Sheepbridge; the Manchester Carriage Company, Limited, Manchester, &c. Such a man, either as a self-made person, a capitalist, a social reformer, or an enlightened employer, is an acquisition to the House of Commons, and cannot fail to be heard to good purpose in all questions which affect the interests of employers and employed.

BENJAMIN WHITWORTH, M.P.

*What Governs the Rate of Wages?**

BY ARTHUR HOUSTON, M.A.,
Whately Professor of Political Economy in the University of Dublin.

In an article that appeared in the sixth number of the Working Man, we endeavoured to ascertain the precise character of the laws which the rate of wages obeys, or, to use a form of expression less open to objection, the influences by which it is affected. For this purpose it became necessary to consider the nature of the laws of Political Economy in general; and it appeared, we trust, sufficiently plain that it was a mistake to regard them in the light of inflexible rules, which no human effort would avail to abrogate or amend—irresistible forces, all opposition to which would be as disastrous as it was vain. We thought it necessary to denounce this dogma, this new form of fatalism, which represents the human race as the sport of powers resistless and relentless as the destinies of classic fable, whose favour is to be conciliated by a humble submission, and to whom the future of the species is to be blindly entrusted, in the vague hope that they will in the end bring us to an economic millennium. The laws of that branch of Political Economy within which questions concerning wages fall, were found to be of quite a different character. While some of them have their source in the nature of things—in the bodily and mental constitution of man, and the condition of the external world—and are, therefore, in no way the work of our hands, others are altogether the creation of society, which by some of the various instruments through which it makes its power felt, by law or usage, by physical force or moral compulsion, modifies or destroys the effect which the former would, if unimpeded, produce.

Having clearly apprehended this fundamental truth, our next step will be to inquire what, in the case of wages, are those natural laws whose influence it is sought to control for good?

Now, the law which more particularly applies to the rate of wages is that which is known as the law of demand and supply. It may be stated in the two propositions following:—1. Under a system of unrestricted competition, the value of any article of commerce has a tendency to *rise* with every *increase* in the *demand*, and with every *decrease* in the *supply*; and has a tendency to *fall* with every *decrease* in the *demand*, and with every *increase* in the *supply*. 2. The level at which value finally settles is such, that the quantity of the article offered for sale at that particular value will be exactly equal to the quantity which, at that particular value, purchasers will be willing to buy.*

Such being the universal law of value applicable to every article of commerce, labour, whenever it becomes an article of commerce—in other words, whenever it is offered for sale—must have its value determined by this principle. And it is, perhaps, not immaterial to remark that the nature of the services rendered by the labourer makes no difference in this respect. Under a system of pure competition, the reward of poet, artist, and actor, lawyer, physician, and divine, artisan, factory operative, and farm-servant, is regulated altogether by the demand for, and the supply of, the particular class of services they severally perform.

Confining our attention, however, to the class with which the Working Man is more especially concerned—namely, those who labour with their hands—let us inquire what are the circumstances upon which the demand for, and the supply of their services, depend?

Now, as to the former—the demand—who are the great purchasers of labour? Government buys some; the State employs many thousand men as soldiers, sailors, and police; private persons purchase a good deal, that of domestics especially. But large as is the demand of the State and private persons combined, far the greater proportion of the labour of the country is bought by capitalists; and it is upon their requirements that the demand for labour principally depends. Leaving out of consideration any question respecting the extent to which, in the progress of invention, manual labour is superseded by machinery, the quantity of labour required by a capitalist is determined by the amount of his capital. In a discussion, then, necessarily so concise and practical as this, it may be laid down as a general proposition that the *demand* for labour increases with the increase of capital, and diminishes with its diminution.

* Continued from page 89.

* It would be out of place to enter here upon any proof of these principles. The experience which every one has of the fluctuations of price in articles of ordinary consumption, and of the circumstances under which they occur, will bear out the statements in the text sufficiently for our purpose. Those who wish to probe the subject more deeply will find it treated with his usual perspicuity by Mr. Mill, in his "Elements of Political Economy," Book III., chap. ii.

The *supply* of labour, on the other hand, evidently depends on three things:—1. The number of persons able and willing to work. 2. The amount of exertion each of them puts forth in a given time; in short, their average *energy*. 3. The proportion of his time which, on the average, a labourer spends at work; the number of hours in the day, of days in the year and of years of his life he is actually engaged at his occupation.

Such being the circumstances upon which demand and supply depend in the case of labour, its value obviously tends to rise or fall according to the increase or decrease of capital, and according to the decrease or increase of the number of labourers, their industrial energy, and the time they work. From this, the further inference immediately follows—that to act on the value of labour, it is only necessary to act upon capital, on the one hand, or upon the number of labourers, their industrial energy, or the duration of their period of work, on the other. These four things constitute the mechanism through which any alteration in the value of labour is to be effected.

While maintaining, however, as we have done in the most unequivocal and emphatic manner, the possibility of controlling the spontaneous action of those laws of Political Economy which spring from the natural constitution of things, we think it right to add that we are by no means insensible of the extreme danger of making any attempt to do so without sufficient consideration. The economic forces at work in society are so various, and they so act and react upon each other, that, until the possible results of any proposed interference with their operation has been pursued through its remotest ramifications, to take a single step is full of risk. An example will suffice to set this in a clear light. Suppose it were considered desirable that the hours of labour should be universally reduced, and that, to this end, a law were passed limiting them to three-fourths of their present duration. Assuming that this law were strictly enforced, the labourer would undoubtedly receive for his seven or eight hours' work as much as he had previously obtained for ten or twelve. The demand for labour, represented by the capital of the country, remaining unaltered, and the supply being reduced one-fourth, its value would rise in a corresponding proportion. So far, the desired result would be attained, and in appearance all would be well. But this rise in the value of labour would produce ulterior consequences calculated to lower it again, and to curtail the wages of the labourer in the same ratio as the hours of labour had been reduced. The value of labour having risen, the rate of profit would be lowered. Less work being turned out, owing to the shorter hours of labour, and the same amount being paid to labourers as before, the returns of the capitalist would be diminished, while his expenses would remain the same. It might be supposed that he could reimburse himself by putting an increased price upon his goods, and to a certain extent this is the case. For a time, prices would be higher than before; but so far as they were, the capitalist would be nothing the better for it, and the labourer would be all the worse. The former, if he got higher prices for what he sold, would also have to give higher prices for whatever he afterwards bought; and, therefore, as much as he gained in one way he would lose in another. But the labourer, receiving no higher wages than heretofore, and having to pay more for what he consumed, would suffer a loss for which he would obtain no compensation. So long as this state of things continued, the labourer would simply do less work; and, though receiving the same wages measured in money, would receive less wages measured in the articles he consumed. But, as we have said, such a rise of prices would be only temporary, the former level being speedily restored by the action of laws which it would be impossible to explain here. So soon as this occurred, it is clear that then, at all events, the entire loss resulting from the reduction in the hours of labour would fall on the capitalist. He has obviously no means of escape. But the instant that this diminution in the profits of capital made itself felt, those who had been in the habit of saving for purposes of investment would lose a portion of their usual incentive to the practice of economy and self-denial. As less could be made of money when saved, less of it would be saved, and the stock of capital in the country would be diminished, or at any rate its further accumulation would be checked. But we have seen that the *demand* for labour may be taken as co-extensive with the quantity of capital in the country, and that everything which tends to diminish this quantity tends to diminish the demand for labour and to lower its value. So that a measure which was designed merely to benefit the working classes by reducing the hours of labour, might have the further effect of reducing their earnings in a like proportion.

This example will serve to show how ill-directed efforts to extend the spontaneous action of economic laws may defeat their own object, or at least produce effects more disastrous than those it was sought to avoid. In our opinion, the action of these laws may be beneficially modified by means which society has at its command, provided these means are properly chosen and judiciously employed; but they are edge-tools, not to be rashly handled by the unskilful workman.

Letters from Lancashire, by a Lancashire Lad.

IV.—CO-OPERATION IN ROSSENDALE *(continued)*.

Having, in my last, given a very faint sketch of the circumstances amid which the Co-operative movement may be said to have had its origin, I now proceed to the further description of the work in Rossendale. As I have said, the business done at Bacup was at first very small, and as all concerned were workers, chiefly at cotton mills, it could not be expected that it would go on with any great rapidity. Clubbing their moneys together each week-end, the persons appointed would trudge off to Todmorden or Rochdale, and there buy what might be needed. It happened more than once that, owing to the distance which it was necessary to carry the articles, the distribution could not take place until Sunday morning. It is said that at first the profit left for division amongst members, after the distribution of the goods had been made, did not amount to more than 1s. 6d. or 2s.

The next step was to keep some little stock on hand. This was managed by each member contributing some few pence weekly until a certain amount was raised, and then the whole was spent in stock. Then, instead of having a division of goods each Saturday, the members could buy what they wanted any evening in the week. Of course it was necessary to spend money upon articles which all shopkeepers must have; and some of the men who have a part in the large business which Co-operation is doing now, look somewhat comical as they tell about the grave debates which took place upon the purchase of a pair of scales, or about the setting up of the first counter. The salesmen, of course, were at first a little clumsy; and we fancy that those of them who had a keen sense of humour, must have appreciated the opportunity of burlesquing the patronising, as well as the patronised manner, of the big shopkeeper. Before twelve months had passed, the number of members had increased so considerably, and the business done was so large, that the premises below the attic had to be taken; and instead of "Shanks's pony," a horse and cart was employed to carry the goods. It was only possible to have the Co-operative Shop open at night, because the men who acted as salesmen were engaged at the mill during the day. At first these men did their work without receiving any pay at all, but after a while a small sum was allotted to them, not in any sense proportionate to the services they rendered, but just an acknowledgment of indebtedness. The men themselves did not look for pay; they thought too much of the chance of redeeming themselves and their fellows from the evils of absolute poverty. They had got hold of a new notion of how to prepare for a rainy day, and were bent upon testing its worth. I have seen recently the expression of a warning to Co-operators, which tells them to mind and not look to their scheme for more than it can properly give. "It is," says the writer to whom I allude, "only a pounds-shillings-and-pence movement, and that, as a new gospel for the poor, is to endanger rather than to forward the higher interests of working men." So far as my own observation has gone, I do not think there is much to fear as yet. The material dangers which threaten working men are such as to make me glad to note the spread of what may seem to some so sordid a movement as this of Co-operation; but in the working of it, it is impossible to prevent the germination of ideas which have a larger meaning than we attach to mere buying and selling. The association of men, all bent towards one purpose, all necessarily practising such virtues as abstinence and self-denial, and all participating in such practical, economic lessons as are a thousand times more forcible than the same lessons when set forth only in books—such an association is sure to realise much more than the mere pecuniary profits which are recounted in half-yearly balance-sheets. To me it has seemed that the great want of working men was the knowledge which Co-operation is giving them. Trades' Unions have too often acted as a man would act who should attempt to split a piece of wood by trying to force in the thick end of his wedge first. They have, as a rule, only embittered the relationship existing between master and men; and, losing all sight of what is, after all, most important to every working man—perfect freedom in the exercise of his labour—have been greater tyrants than those whom they have denounced. If Trades' Unions would only teach their members what Co-operation is teaching, and would more and more base their actions on the economic truths which are so admirably developed in Co-operative Societies, they would soon be raised above that atmosphere of suspicion which, unfortunately, does at times envelop them. Pardon this digression. I think we should do wrong if we believed that the bulk of the men most nearly concerned were making too much of Co-operation. It would be well if they could convince others to see as far as they do. I have said that the Rossendale Co-operatives—at least such of them as took the part of salesmen—were at first rather clumsy. A story was told to me which illustrates this, but I do not know whether it is worth repeating. In one of the lesser Rossendale towns a Co-operative Society was started, and the members, residing at that end of the valley which is most distant from Bacup, went to purchase goods at Haslingden. The day of opening came, and the poor fellows inside the store were busy arranging things, so as to display their goods to the best advantage. I suppose treacle was there, as it was elsewhere in Lancashire, an article of large consumption amongst children; but as the Co-operatives had not the orthodox can from which shopkeepers pour that thick fluid, it was placed in a large mug. One of the men passing this mug with the half-cheese which was the whole dairy produce they purposed exhibiting, was so clumsy as to let it go souse into the treacle. The consternation was great; but the evil was amended. In some places the men were so susceptible of the ridicule which might be thrown upon their amateur shopkeeping, that they drew lots—drew "outs," they would call it—to decide who should open the shutters on the first night. The intense interest which the Bacup men took in their experiment was such as to induce them to try all sorts of devices to make the little they had go a great way. There is one story of a man who tried if less flour would not suffice for himself and family by cutting an inch off the open end of the flour-bag. What his success was in in that matter I don't know; but I know that the man has, since then, amassed so much property—and all in Co-operative concerns—that he is now entirely free from the necessity of labour.

In the second year the Bacup store numbered members by the hundred instead of by tens, and its business was become so large, that it was found impossible to serve all the customers in the time during which the store was then open. The consequence was that the shop had to be opened in the day, and a shopman engaged to attend to the customers. In the third year it was necessary to have two shopmen, and the shop itself was become too small. They set bricklayers and joiners to work, had the shop new fronted, and enlarged as much as was possible. Then they thought that, as they had succeeded so well with groceries, they might try what they could do with drapery. A man and two girls were engaged to manage the new department, which was at once as successful as the most ardent could expect.

From the time of starting to 1859, the Co-operative movement had become so popular in Bacup that the number of members had risen to 758, and from that time, until it is now 2,456. It is very pleasant to think that whilst here and there societies succumbed to the pressure of the distress, the majority of them, like this of Bacup, escaped without much danger. The following little table may be of some interest to your readers, indicating the business done, profits

realised, and showing just a little of the effect produced by the distress:—

Quarter ending	Sales.	Share Capital.	Profits.	Dividend to Members.
	£	£	£	s. d.
Dec. 31st, 1859	12,613	7,169	1,822	2 11 in the £1
„ 1860	19,510	9,245	2,899	3 0 „
„ 1861	19,608	13,439	2,757	2 10 „
„ 1862	13,095	8,777	1,722	2 8 „
„ 1863	14,714	8,355	1,693	2 4 „
„ 1864	15,122	9,141	1,955	2 4 „
„ 1865	20,453	12,282	2,598	2 4 „

The society has so grown, that now it does business in the handsomest building in the town. It has a staff of some score of servants, and many departments, where different trades are carried on. It has a large hall, in which I myself have seen some thousands of men assembled. It has a commodious reading-room, in which its members can read papers and magazines free of cost; and has a library which supplies them with reading at home.

(To be continued.)

Ammoniacal Gas.

Attention has recently been directed to the application of ammoniacal gas as a motive power. The properties upon which this new application is based, are—1st. The great solubility of ammoniacal gas in water.* 2nd. Its easy liquefaction. 3rd. The faculty it possesses, at ordinary temperatures, of supplying manufacturing pressures. 4th. The possibility of superheating its vapours without attaining too high temperature. 5th, and as completely essential — firstly, the possibility of collecting and dissolving it; next, *that of abstracting from the utilised vapours the latent caloric they contain, to transmit it to the vapours about to be formed, and employed anew*—a triple phenomenon, produced simultaneously by the simple fact of the solution of this gas in water.

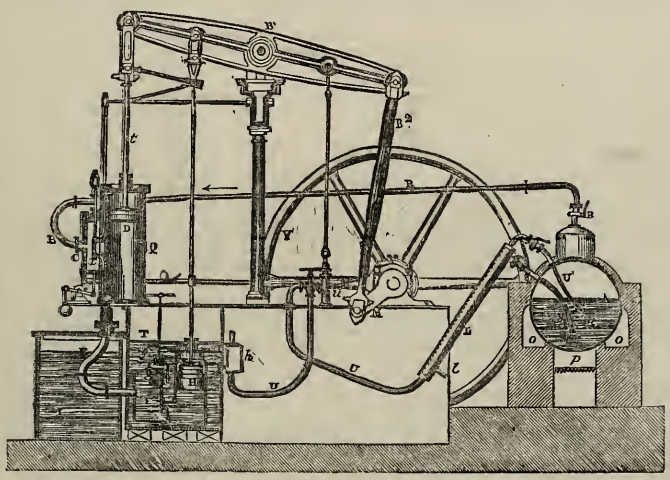
If we store up in any enclosed space a certain quantity of liquefied ammoniacal gas, and at the same time have a quantity of water about three times greater, we can vaporise all this gas, and utilise it as a tolerably constant motive force at a pressure of eight or ten atmospheres; as the latent caloric needful to the gasification will be constantly supplied by the caloric of condensation disengaged in the aqueous solution. If, therefore, in a large manufactory employing powerful means of action, natural or artificial, the ammonia be collected and liquefied, this substance, conveyed in a liquid state to where it must be employed, will furnish instantaneously, without preparation, a motive power which may be employed economically. The solution of the collected ammonia formed will be ultimately carried to the factory, its ammonia abstracted from it, then liquefied anew, and conveyed to the place where it is utilised.

This transfer to and fro may, at first sight, appear a difficulty. It is really a very trifling one; for if we consider that with 22 lbs. of liquefied ammonia we can obtain a 1-horse power during an hour, it is easy to perceive that the management of the substance is not only possible, but also, from the point of view of its condensation under a weight and volume deduced from the motive power, that it leaves compressed air and many other kinds of forces frequently recommended far behind it.

The production of power by ammonia is less costly than steam, especially when steam is employed in the excellent machines of modern construction. But it is easy to store up ammonia, and transform it into an inert mass, transportable to places where it would be impossible to generate steam, and always ready, after having slumbered many long hours, to wake up instantly, and surrender all the force it has stored up.

For example, an omnibus drawn by *ammoniacal horses* would require, for an hour's journey, only 44 lbs. of ammonia and 132 lbs. of cold water. With this supply, easily renewable at each journey, we should have a simple manageable motor, discharging neither smoke nor steam, instantly producing its power, whatever be the time of stopping and duration, the re-generation of which costs less; thus procuring an economy of at least 75 per cent. over the employment of horses, at the same time giving to the public the largest and most economical means of transport. Ammonia omnibuses and other vehicles will, perhaps, some day travel on railways as a means of access to elevated stations; or as an agent of circulation through tunnels, where smoke would not be tolerated; or in bye-roads, in mines, or steam ships and boats, and especially in small factories, requiring a simple economic motor ready night and day.

Mr. Goldsworthy Gurney, in his evidence before a Committee of the House of Commons, in 1831, on locomotive carriages on turnpike roads, stated that he had made experiments with ammonia, and he thought that this substance might replace steam, when the apparatus was sufficiently improved as to admit of its general employment. A Mr. Mont Storm, of New York, has patented an ammonia engine, and in France M. Delaporte and M. Van Waeyenberch have taken out patents for machines of this kind.



AMMONIA ENGINE.

M. Delaporte's patent is dated 31st October, 1839. He takes a solution of ammonia in water, and puts it into the *desaturator*, A, which consists of a metal vessel of cylindrical or any other form, mounted over a furnace, S, which has a fire at *p*, and its flues at o and o.

The solution of ammonia is heated in this vessel to a temperature sufficient to expel the gas, and give it the pressure we desire to obtain, when the tap, R, is opened: the gas immediately rushes through the pipes, B, into the distribution box, C, of the motor cylinder, Q, and by means of the valve, *x*, it passes alternately above and below the piston, D, which it thus sets in motion, which motion is transmitted by the rod, *t*, to the beam, B^1, which communicates it by the crank, B^2, to the crank, M, and consequently to the axle furnished with a fly wheel, V.

When the ammoniacal gas has exercised its expansive force upon the piston, D, it passes by the pipe, E, and arrives at the condenser, F; the pipe, E, passes through a vat filled with cold water, I, before reaching the condenser. The object of this arrangement is to condense, by contact with the sides, the vapour of water carried over by the ammoniacal gas. This vapour becoming liquid, absorbs a considerable quantity of gas, and is thus converted into ammoniacal solution.

If the water arising from the condensation of the vapour is not sufficient to absorb all the ammoniacal gas, cold water is injected through the cock, *g*. This water may be taken from the vat, T, from a well, a reservoir, or stream. The water injected into the condenser becomes saturated with ammonia, so that the liquid contained in the lower part of the condenser is, in fact, an ammoniacal solution, which is extracted from the condenser by the air-pump, H, and thrown into the reservoir, *k*, from which it is drawn by the feed-pump, *u*, through the pipe, U, and afterwards conveyed to the desaturator by the pipe, U^1.

Upon arriving at the desaturator, A, the solution again disengages its ammonia, which returns to the gaseous state, to work the engine again and again. If it happens that the solution is not sufficiently concentrated, a certain quantity of a saturated solution is added, or, preferably, a current of ammoniacal gas is passed into the reservoir, *k*, or into the desaturator.

As it may happen that a greater quantity of water may be conveyed into the desaturator than that carried in the state of vapour, it will soon become full. To avoid this inconvenience, it is only necessary to immerse the waste pipe, *y*, to the bottom of the desaturator, and to open the cock with which it is furnished, when the level of the water is too high.

The liquid that flows out in this case is water in nearly a pure state; the ammoniacal solution, being much lighter than the water, will remain on the surface of the liquid, *a*. On this account, the feeding-pipe, U^1, is immersed only a small depth into the liquid. The warm water flowing through the tube, *y*, passes through the envelope, L, surrounding the feed-pipe, U^1. The object of this arrangement is to warm the ammoniacal solution before it reaches the desaturator, and thus economise fuel. The extraction water may be conveyed out by the tube, *l*; in certain cases there will be an advantage in cooling it completely, and employing it for injecting the condenser. Engines employed to produce motive power by means of ammoniacal gas may be either high or low pressure, with or without expansion. The desaturator may be heated by steam or by any other source of heat. The engines may be fixed, locomotive, or marine.

Other properties of ammonia have of late been turned to important account in the arts; these will be described in a future number.

* Cold water dissolves nearly 800 times its own bulk of ammoniacal gas; and heat, at different temperatures, drives off the gas again, producing different degrees of pressure.

Appearances of Good and Diseased Meat.—Good meat is neither of a pale pinkish colour nor of a deep purple tint. The former is indicative of disease, and the latter is a sign that the animal has died from natural causes. Good meat has also a marbled appearance from the ramifications of little veins of intercellular fat; and the fat, especially of the internal organs, is hard and suety, and is never wet; whereas that of diseased meat is soft and watery, often like jelly or sodden parchment. Again, the touch or feel of healthy meat is firm and elastic, and it hardly moistens the fingers, whereas that of diseased meat is soft and wet; in fact, it is often so wet that serum runs from it, and then it is technically called wet. Good meat has but little odour, and this is not disagreeable; whereas diseased meat smells faint and cadaverous, and it often has the odour of medicine. This is best observed by cutting it and smelling the knife, or by pouring a little warm water upon it. Good meat will bear cooking without shrinking, and without losing very much in weight; but bad meat shrivels up, and it often boils to pieces. All these effects are due to the presence of a large proportion of serum in the meat, and to the relatively large amount of intercellular or gelatinous tissue; for the fat and true muscular substance are to a greater or less extent deficient. It is at all times best to guard against the possibility of injury by having meat well cooked. It should be so cooked that the very centre of the joint should be exposed for some time to the temperature of 212° Fahrenheit. The instructions of Liebig in this particular are hardly safe; for although a temperature below that of boiling water may coagulate albumen and develop the flavours of cooked meat, it may not ensure the destruction of dangerous parasites. It is therefore better to have the meat a little overcooked than otherwise.—*Dr. Letheby, Report on the Cattle Plague.*

IMPROVED METHOD OF ENGRAVING ON GLASS.

Very excellent results in glass-cutting are obtained by substituting fluoride of calcium dissolved in hydrochloric acid for hydrofluoric acid, as suggested by M. Texier du Motay. The aqueous solution of hydrofluoric acid produces a lustrous biting upon the glass, while gaseous hydrofluoric acid gives a flat, rough, and adherent surface. For diluted hydrofluoric acid forms both with the silicium of the metal in the glass, and with the silicium and the alkaline earth in the glass—double fluosilicates of lead in the liquid where they are produced; while gaseous hydrofluoric acid forms volatile fluoride of silicium and insoluble fluorides of calcium and lead in the medium where they are generated.

Be that as it may, the *mat* engraving produced by the reaction of gaseous hydrofluoric acid upon glass is a striated surface of unequal thickness; for the water engendered by this reaction, gradually acidified by the contact of gaseous hydrofluoric acid, accumulates in unequal drops; and, also, partially and unequally dissolves the fluorides of lead and calcium formed.

The production of *mat* engraving by the fumes of hydrofluoric acid being, therefore, on this account, mechanically impracticable, endeavour has been made to effect this kind of engraving practically; for in a bath where hydrofluoric acid is disengaged in a nascent state, on contact with the silicic acid of the glass, there will be no formation of fluorides of silicium, nor, consequently, of fluorides of lead and calcium.

To generate hydrofluoric acid in a nascent state, we have had recourse to the reaction which the aqueous solutions of acetic and hydrochloric acids exercise upon the fluorides and the hydrofluorates of the alkaline metals.

Experiment shows—*first*, that, if to 100 ounces (five pints) of water, for example, we add twenty-five ounces of hydrofluorate of fluoride of potassium, well crystallised, and twenty-five ounces of commercial hydrochloric acid, we obtain a bath in which the glass becomes "ground" very rapidly, but the surface of which is neither very thick nor regular. *Secondly*, that to render the fluorides of lead or of calcium insoluble, or nearly so, in the above bath, and endeavouring to obtain thick and uniform "ground" surfaces, sulphate of potassa must be added to this bath till the liquid is saturated. The quantity required is about twelve ounces. *Thirdly*, that the sulphate of ammonia, as well as the oxalate of potassa, and some chlorides greedy of water—such as chloride of zinc, for example—can replace the sulphate of potassa to render the fluorides of lead and calcium in the engraving bath insoluble.

This process will gradually supersede those involving the use of the wheel and hydrochloric acid, and thus secure the workman against many dangers to his health.

Co-operative Intelligence.

Lea and Holloway Co-operative Industrial Society (Limited), near Matlock, Derbyshire.—On Saturday, 3rd February, we held our annual tea meeting, to which over 200 persons sat down to a substantial meal, after which Mr. John Holme, of Leeds, delivered a very interesting and instructive address. He told us of the land of Canaan before us, which we might possess if faithful in our co-operative journey, and he would be willing to come and address us again when we had doubled our business and doubled our profits. The quarterly report read showed that the business of the quarter was very encouraging. Cash received for goods, £734 12s. 1½d.; dividend to members, 2s. in the pound; to non-members, 1s. We give cheques on all goods. I name this as some societies don't give cheques on flour, sugar, &c.

Tweedside Industrial Co-operative Society (Limited), Tweedmouth.—The committee "are highly gratified in being able to present the shareholders with so favourable a statement. Eighteen members have joined during the quarter, and six withdrawn; total number, 299. Our sales for the quarter amount to £1,848 14s. 4½d., showing an increase over the previous quarter's sales of £199 17s. 10d. The disposable balance amounts to £218 4s. 8d., which gives a bonus of 2s. in the pound on all purchases. Public trade, £64."

Over Darwen Industrial Co-operative Society.—The twentieth report of the society's accounts, for the quarter ending December 26, 1865, gives the following results:—"The cash received for goods sold during the quarter amounts to £8,142 19s. 0½d., and for the year £31,904 18s. 1d., being an increase of £1,672 5s. 3d. when compared with 1864. The members' contributions for the quarter amount to £897 0s. 7d., and the withdrawals to £375 17s. 4d., thereby increasing the capital of the society £521 3s. 3d. The profits for the quarter amount to £719 9s. 7½d., which, after depreciating fixed stock and building account to the amount of £27 10s. 8d., paying interest on capital, and other incidental expenses, will allow a dividend of 1s. 8d. per pound on members' purchases, and 1s. per pound on non-members' purchases at the stores during the quarter; and your committee recommend that £26 2s. be added to the dividend guarantee fund, and the remainder—£30 13s. 9½d—be placed to the reserve fund. The gross profits for the year amount to £2,517 13s. 11½d., which have been disposed of in the following manner—viz., £125 11s. 10d. for depreciation, £297 6s. 3½d. for interest, £71 0s. 1d. to the dividend guarantee fund, £58 11s. 6½d. to the reserve fund, £203 8s. 10½d. for dividend on non-members' purchases, and the remainder—£1,761 15s. 4d.—among the members in proportion to their purchases; or, taking the average number of members for the year at 850, will give an average profit of £2 1s. 5d. for each member. Your committee of management are most happy to report that, during the past quarter, they have succeeded in purchasing the most eligible freehold premises, situate in School Street, known by the name of 'The Old Church School,' on which to erect new central stores."

Dalton Co-operative Society (Limited).—The eighteenth quarterly report of the committee for the quarter ending December 15, 1865, says—"The amount of cash received for goods sold at the stores amounts to £2,251 4s. 7½d.—being an increase over the previous quarter of £321 4s. 5d. We have also to report an increase of twenty-six members during the quarter—number withdrawn, four. Total number of members, 357. After paying interest on all paid-up shares, at the rate of £5 per cent. per annum, there remains a profit of £215 12s. 2d., which enables us to declare a dividend of 2s. 2d. in the pound on members' purchases, and 1s. in the pound on non-members' purchases, and £19 7s. 5d. to the depreciation of the buildings."

Belmont Amicable Unity Society (Limited), High Street, Vauxhall.—The committee of management have much pleasure in submitting their twenty-second half-yearly report to their fellow-members, together with a statement annexed of the present position of the society, the net amount of profit available being £42 15s. 5¼d., as shown in the financial sheet, after making due provision for the usual half-yearly guaranteed interest on capital—viz., £4 9s.8d. Your committee have to congratulate you upon having so respectable a balance, looking to the very heavy expenses incurred during the past six months—*vide* new smokeless furnace and expenses, solicitor's bill of costs in the matter of the new premises, coupled with some other charges for repairs, &c., and the smallness of the society's returns in comparison with former years, though there has been a slight improvement in the last few months, and your committee having been well bought in for flour during the same period, has been mainly instrumental in bringing about this satisfactory state of things. During the past six months twelve shares have been repaid, two new ones issued, and one other partly subscribed for. The society consists now of 136 members, holding 155 shares. The secretary writes:—"We have been established twelve years, and have had up-hill work, and great difficulty in maintaining our ground against prejudice and want of support from those for whose benefit this society was established; but, alas! the apathy that exists in London with regard to the development of a movement calculated to do so much good. Happily not so in the north of England, where its principles seem to be properly understood and appreciated. We are now removing to a thickly-populated neighbourhood—Spring Place, Wandsworth Road."

The London Association for the Promotion of Co-operation.—We have received the following letter:—"Permit me, through your columns, to inform your correspondent 'Co-operator' that a few co-operators (who, like himself and friends, have been members of societies that have not succeeded), with the assistance of the council of the London Association for the Promotion of Co-operation, meet every Tuesday evening, at half-past eight o'clock, at the office of the above-named association, No. 9, Bell Yard, Doctor's Commons, E.C., for the purpose of forming a Co-operative Society, upon an improved plan, in the City, and they would be glad of the assistance of your correspondent and his friends at their meetings to promote the formation of the society. Hoping, Sir, that the Working Man will go on and prosper, I am yours respectfully, James T. Judd, Assistant Secretary, London Association for the Promotion of Co-operation."

Brixton Co-operative Industrial Provident Society (Limited), 1, 2, and 3, Lyham Terrace, Lyham Road, Brixton, S. Branch Stores: Holland Street, North Brixton, and Wells Lane, Streatham.—The report for the quarter ending 28th December, 1865, says—"It is very gratifying to your committee to have it in their power to present you with such a report as the present. Our fifteenth quarter shows a continued increase of business, being £516 7s. 6¾d. over the previous quarter, and £980 3s. 5¾d. over the corresponding quarter of last year. Your committee have the pleasure to inform you that the new stores at Streatham are nearly completed, and will be opened some time in the course of the present quarter, when they hope that the accommodation provided for our friends in that neighbourhood will prove adequate to their requirements, and that they will accordingly show their appreciation of the labours of the committee by endeavouring to increase their numbers, and consequently their trade. Your committee avail themselves of this opportunity of informing the members generally that a new branch store is about to be opened at Balham, where they have no doubt that affairs will prosper in the same ratio they have done at our other branch stores. Your committee have also made arrangements for opening a butcher's shop at 4, Lyham Terrace, Brixton, where they hope to supply all our members who can make it convenient to come so far, with beef, mutton, pork, &c., of the best quality only, at reasonable prices. The profit accruing from our last quarter's business is £637 4s. 7d. The number of members at the commencement of the quarter was 734. Thirty-three have withdrawn and sixty-four have joined during the quarter, leaving 765 on the books of the society on the 31st December, 1865." A tea-meeting and entertainment was held at the Immanuel Church School-room, on Thursday evening, the 15th instant, to celebrate the opening of the new store at Streatham.

The Daisyfield Industrial and Co-operative Society commenced in February, 1861, and has consequently existed close upon five years. A few industrious and thoughtful working men having heard of the benefits conferred upon the members of many Co-operative Societies in the country (the foremost of which stood the celebrated Pioneers of Rochdale), resolved to form a society of that description. From the 4th to the 19th of February, 1861, there were twenty-eight members enrolled, with a capital of £55 in business. For the first quarter the business was done without a daily shopman, the committee serving purchasers at nights; and at the end of the first quarter, a profit was cleared of £32 14s. 7d., which greatly encouraged the members. For some time after this, the society continued to improve, until a dark cloud appeared, which threw a sad gloom upon the hopes and prospects of the members, and which threatened destruction to this and other kindred societies—namely, the breaking out of the American War—which brought upon Lancashire, through a cotton famine, the most distressing times. This not only retarded the society's progress, but many of its members were unavoidably thrown out of employment, and obliged to withdraw their investments. Though this great distress fell upon the operatives by no fault of their own, yet they cannot but remember with gratitude that many gentlemen nobly devoted their time and means in order to relieve them, one of whom greatly distinguished himself by his untiring exertions on their behalf. The gentleman alluded to has honoured this society by kindly consenting to preside over this meeting—namely, Mr. Richard Beaty. Fortunately for the existence of this society, there were a few hopeful and determined members, who resolved to stand by it, and steer it through the panic. As may be expected, in consequence of the commercial depression, our society was attended with but indifferent success, until the beginning of 1864, when it began to make some progress. At this time the number of members was sixty-one, and during the year 1864, increased to 100; and the business done in this year exceeded the business of 1863 by £918. This improvement naturally raised the hopes of the committee that the society had weathered the brunt of the storm, and was about to extend its usefulness and benefits to the people in the district. In 1864, the officers and some of the members began to purchase and patronise the *Co-Operator*, from whose pages we have gathered valuable instruction and encouragement. The editor of this useful journal (Mr. Henry Pitman) is a gentleman who has devoted a great number of years in advocating the principles of Co-operation amongst the people, and whose name is familiar and highly honoured in almost all the Co-operative associations throughout the country. In 1865 our members increased to 168, having by solicitation opened a branch store at Green Bank, which promises fair to be successful. The business done in this year was £4,042, being £1,378 in advance of 1864, and an increase of capital of more than £200. Since the commencement of this year, the share capital has increased £60, and we have entered twenty new members, which make our present number of members 188. Many of our members will testify that they have much occasion to rejoice in having entered this society, by reason of being served with good provisions, good weight, and having handed to them, from time to time, considerable sums of money in dividends, arising from the profits. Many of our members have entered the society, merely by paying 1s. 6d. each for entrance, and from the allowance on their purchases, have, in a short time, got several shares of £1 each to their credit in the books.

Co-operative Meat Stores.—We have received the following letters on the subject:—"Gentlemen,—Your well-known proclivities for schemes tending to elevate morally and socially the toiling millions of our highly-favoured land is world-wide. Another evidence in proof is given by the publication of the Working Man, which I hope will meet with the support it deserves from the classes whose interests are advocated. To direct the thinking masses, and guide their thoughts to a practical issue, is evidently the object and aim of your new and welcome serial. Allow me to point out an error in your excellent article on dear meat. You say it is wonderful there are no Co-operative meat companies. In Leeds and neighbourhood there are several; two, I believe, selling their best joints at 6d. per pound. Another commenced about a month ago, with every prospect of success, and a large dividend for the shareholders. It opened its shop in the centre of Leeds—part of an old inn that has lost its licence for bad conduct; and instead of rolling out bawling and noisy, as formerly, poor men and their tidy wives are seen making their purchases of sub-

stantial food, and retire in peace. The best joints in beef, mutton, and veal are sold at 8d. per lb. Already the premises are too small, and the demand greatly in excess of the supply. From the little knowledge I have of the above takings, a reduction of 1d. per lb. might and ought to be made, still leaving a very satisfactory dividend. As another Co-operative company is in course of formation, they are desirous of adopting the most improved method in killing and dressing. Would you be kind enough to inform us where we can learn the system that has such high claims to our consideration? Apologising for my long letter, and wishing you success, I am, yours respectfully, A Beef-Eater."—Upper Wortley, near Leeds, 12th February, 1866.—Gentlemen,—I have read your article on 'The Meat Question,' and wish to mention a fact or two. On the 15th of December, 1865, about forty working men living in Wortley agreed to purchase a bullock, and ascertain at what price good well-fed meat could be sold at, and leave a fair, reasonable profit. A committee was appointed; the bullock killed; its weight ascertained. The retail price per pound for best joints was fixed at 7½d., and inferior joints at corresponding prices. The result has been that the forty original members have had a bonus of 7s. per share; the butchers in the neighbourhood been obliged to reduce their meat from 9d. to 7½d. per lb., thus benefiting the public. The society is extending its operations, killing three beasts and three sheep weekly where it only killed one. The shares were 21s. at first, but are now reduced to 10s., and we admit all comers who promise to be consumers. I feel very curious to know how we may, by a superior mode of slaughtering, save the animals pain, add twenty per cent. in weight of saleable meat, and add to its nutriment. We are in a position to make the experiment. We go on the ready-money system; sell to whoever comes; make no distinction in selling between members and non-members; and as all members are consumers, we are pretty sure of selling up, if we buy with any judgment. If any new mode offended stray customers, provided members generally were benefited, we could afford to let them go. Naturally we wish to know more about this new mode of killing, and shall be glad to hear how this knowledge can be obtained."

Things Talked About.

One of the very first subjects discussed in the New Parliament, and which, next to the terrible Cattle Plague, Government appears to consider of foremost interest, is the best mode of providing dwellings for the labouring classes displaced by railway and metropolitan improvements, and otherwise, for reasons sadly notorious, very much in want of healthful, convenient, and cheap dwellings. The time-honoured maxim, *Salus populi suprema lex* ("The health of the people is the highest law"), has hitherto been more talked about than acted on by English statesmen. Now, however, ministers are really girding themselves up for the consideration of the question. Mr. Childers, the Under-Secretary of State for the Home Department, has introduced a bill, which has passed the first reading, for the purpose of enabling the Public Works Loan Commissioners to make advances towards the erection of dwellings for the labouring classes in populous places. There already exist Acts of Parliament conferring somewhat similar powers, but hitherto they have, from various causes, remained nearly a dead letter. The new bill proposes to enable minor local authorities in all parishes, public companies, and private persons to obtain advances at not less than four per cent., payable by instalments, and according to the same conditions as the present loans for public works. Of course there must be inspection of the plans for the proposed buildings, to ensure their suitability. The measure appears likely to receive almost unanimous support in the House; and when we read in Mr. Bazalgette's report to the Metropolitan Board of Works that the railway bills of the present session propose to destroy something like 16,000 houses, the necessity of immediate legislation must be apparent.

Meanwhile, that great public benefactor, Mr. Peabody, while furnishing the money on the most magnificent scale, is also showing how it may most wisely be expended. He sees plainly that enormous blocks of buildings divided into flats is not all that is required. Small houses out of town—suburban villages, in fact—with provision for easy access, are vital necessities. The railway companies have done most to create the difficulty, for their own profit; they should be bound to do their utmost to alleviate it. Mr. Peabody, in the letter in which he places £100,000 more at the disposal of the trustees, makes some wise suggestions. He desires that sites may be obtained within a radius of ten miles from the Royal Exchange, for the erection of "comfortable and convenient houses;" and "as dwellings in such sites may in some instances be remote from schools and other facilities for instruction, the trustees shall be at liberty in such cases, should they consider it needful, to set apart space adjacent to the building, and suitable for school-houses for the children of the families holding tenements. But such schools must be so organised as carefully to exclude sectarian influences, and so conducted as to avoid denominational jealousy." The want of such schools is severely felt by the occupants of Mr. Peabody's buildings and other similar edifices in London. He also impresses the necessity of making arrangements with railway companies for cheap and convenient trains. If all liberal donors had been as wise in their generation as Mr. Peabody is in his, we should have less of the perversion of the intentions of the founders of ancient trusts.

The London parishes, too, are moving in the matter; but with no very determined aim. Representatives of various boards of guardians have presented a memorial to the Hon. C. P. Villiers, President of the Poor Law Board, lamenting the wretched state of the habitations of the poor, but proposing no clear plan for the amelioration of their condition. The truth is, that parochial suggestions must be received with caution. There is a great tendency to desire the removal of the poor from crowded districts, with a view to lessening the local rates, by shifting the burden to another parish. The difficulty must be dealt with on broad principles, and it would seem that a measure for equalisation of the poor rate must follow any comprehensive scheme for improving the dwellings of the poorer labouring classes.

While on this subject, we may just mention that, at the meeting of the Improved Industrial Dwellings Company (Alderman Waterlow's), a dividend at the rate of five per cent. per annum was declared, which shows that the providing of good house accommodation is a tolerably remunerative investment. In fact, just now, Government, private benevolence, capitalists, and working men themselves (by means of an adaptation of building society machinery), are in the field, and something good ought to result. The two monster edifices in the Metropolitan Market, which never yet have been applied to any useful purpose, have been at length let on lease for twenty-one years to a society, which intends to convert them into dwellings for the labouring classes.

The Postmaster-General tells us, in his annual report on Post-Office Savings Banks, that, at the close of the year ending March 31, 1865, there were 524,340 depositors, of whom 140,518 belonged strictly to the working classes. Nearly £6,000,000 represented the amount of deposits. On the whole, it seems reasonable to expect that the annual increase in the business of Post-Office Savings Banks will for some time be from 130,000 to 140,000 in the number of depositors, and from £1,400,000 to £1,500,000 in the capital. Great is the power of the pence! With such an amount invested on Government security, and such a probability of increase, the working classes have indeed "a stake in the country."

And the working class feel that they have; and an association of working men has just been formed, comprising amongst its members a large number of the representative and leading men of the London trades and friendly societies, and other working-class organisations, with the immediate object of bringing the united influence of the working men of London to bear upon the Government for the purpose of obtaining the insertion of a clause in the forthcoming Reform Bill, conferring the franchise upon all adult male lodgers paying a certain rental.

We see that a measure is promised by Government having reference to the preservation of open spaces. We shall carefully watch its provisions. A public meeting has been held at the Beaumont Institution, Mile End. Our friends in the East are determined to do their best to prevent further invasion of Epping Forest, Wanstead Flats, and other open places, where they have hitherto resorted for a breath of pure air, and a glimpse of rural scenery.

Housekeepers of moderate means may congratulate themselves that the ready-money system, on which they usually act, is a real saving. We hear of a tradesman who has two shops in the provision trade, one at the East End, and the other at the West End. Credit is generally taken by the customers of the West End house, who are charged twenty-five per cent. extra profit for all goods booked to a six months' account, or fifty per cent. per annum more than the humbler East End customers.

Some few months since a workman, named Henry Knell, employed at the carriage department of the Royal Arsenal, Woolwich, composed and published a work entitled "Chips from the Block," being essays upon questions connected with social science. Her Majesty, having seen a copy of the work, forwarded to the author, through Sir Charles Phipps, a cheque for £10, accompanied by a letter expressive of her approbation of the praiseworthy manner in which the author had occupied his spare time. Mr. Knell has just brought out another work, being a "Guide to Woolwich Arsenal," and containing interesting details of the several departments of that establishment. A copy having been forwarded by the author to the Queen, she through Sir Charles Phipps acknowledged the receipt of the same, and expressed her entire satisfaction with the contents of the work.

A committee of the Council of the Society of Arts has been appointed, to inquire into the state of English and foreign law respecting trade marks. The subject of a proper registration of such marks will be introduced at the next meeting of the Associated Chambers of Commerce, and steps will be taken to introduce a Bill into Parliament.

General Information.

CLUBS AND INSTITUTES.

St. James's and Soho Working Men's Club and Institute, Rose Street, Crown Street, Soho.—A general meeting of the members was held on Thursday evening, the 8th inst., to hear the secretary's report, adopt rules for the government of the club, and appoint officers for the ensuing half year. Mr. Matthews occupied the chair. The report, showing a rapid increase of members and a healthy financial position, having been read, the consideration of the rules, as recommended by the retiring committee, was proceeded with, and after a quiet but earnest discussion as to their merits, were adopted, with but slight alterations. The law prohibiting the introduction of beer and spirituous liquors was allowed to pass without a dissentient voice. The election of officers followed: for treasurer, H. Hoare, Esq., Jun.; Mr. Matthews re-elected as president; Mr. Shipley, secretary; many of the retiring committee re-elected. A hearty vote of thanks to the chairman and past officers closed the proceedings of a meeting, whose numbers, and their close attention to the affairs of the club, amply proved the necessity of such an institution, and the great probability of its becoming eminently successful. The rent of its present commodious premises and concert hall having been kindly guaranteed by Mr. Henry Hoare, Jun., and there being a large number of working men in the neighbourhood, the energetic efforts of the committee and other members seem to be at length rewarded. For many months they had to struggle with the great hindrance of very inadequate premises, so that their numbers fell to about twenty. These, however, stuck bravely together, and have triumphed over their numerous difficulties. They number now 130 members, are paying their way, and have every reason to hope for a long career of increasing benefit to the neighbourhood.

Camden Town Working Men's Club and Institute.—The annual public meeting of this very useful and prosperous club was held on Tuesday evening, the 13th inst. Thomas Chambers, Esq., M.P. (Common Serjeant), was announced to preside; but, being detained by another meeting in Exeter Hall, the Rev. H. Solly was requested to occupy the chair till he arrived. Addresses were delivered by that gentleman, M. A. Garvey, Esq., LL.B., the Rev. J. C. Harrison (Independent Minister), and by several members of the committee. Mr. Chambers, on his entrance, was greeted with much applause; and, having given an excellent address, in the course of which he announced himself as one of Mr. Solly's converts, on the occasion of meeting him at the recent Social Science gathering in Sheffield, he proceeded to distribute several valuable prizes awarded to students in the French class. But the chief event of the evening was the presentation by Mr. Chambers, on behalf of the members of the club, of a beautiful writing-desk to Mr. Porter, whose indefatigable exertions and fine musical taste, ably and generously seconded by many fellow-workers, have long made the weekly entertainments of the Camden Town Working Men's Club so popular throughout the district. Mr. Porter was received with vehement and prolonged applause, and gracefully acknowledged the gift. Very hearty votes of thanks to Mr. Chambers and the visitors, especially to Mr. Borrow, the honorary secretary, concluded the evening's proceedings.

Opening of a Working Men's Club at Gateshead-on-Tyne.—The first Working Men's Club at this town was opened on Monday, February 5th. Previous to the inauguration, admission was given to ticket-holders to inspect the premises, and to view a number of paintings, models, drawings, microscopes, and other objects of interest that had been lent or presented to the club. An excellent quartette party, during the exhibition, also gave some musical selections. After the *conversazione*, the president of the club, Mr. H. Tennant, took the chair. On the platform were several of the principal townsmen, among whom were the representative of the borough, Sir W. Hutt, and Lady Hutt. Sir W. Hutt delivered the inaugural address. To give others an opportunity of seeing the exhibition, and that the establishment of the club might be fully known in the district, similar meetings were held on the 6th and 7th inst. On the former evening the Mayor presided. Two gentlemen gave an interesting description of some of the uses of electricity. During the latter evening Mr. T. P. Barkas lectured on the objects of interest at the exhibition. Each of these lectures was preceded by a *conversazione*, as on the first evening.

Ipswich Working Men's College.—The fourth annual *soirée* in connection with the Working Men's College has taken place at the Corn Exchange; and the large attendance of members of the college and their friends, was a conclusive proof that, so far from this *réunion* having declined in popularity, it becomes better known and more appreciated every year. The arrangements were such as must have given universal satisfaction, and the probable consequence will be, that another year, if the council of the college intend to afford accommodation for all who will desire to attend, they will have to erect a building for the special purpose. The first part of the proceedings consisted of a tea, of which some 600 ladies and gentlemen partook. At eight o'clock the chair was taken by the Mayor (E. Goddard, Esq.), and the entertainment, which consisted

of vocal and instrumental music, readings, and recitations, commenced. The programme was well arranged, and passed off very successfully. Dr. Christian, the principal of the college, who was warmly received, said he thanked the public for the support they had given on that and on every occasion to their attempts to do good to classes who deserved to be supported. He was happy to say, with reference to that meeting, that he believed the result of it would be that the college library would benefit by it to the amount of about £20. On the following evening a treat was given at the Corn Exchange to the children belonging to the Ipswich Industrial Ragged School, the Tanners' Lane School, and the Union School, who will long have a grateful recollection of the kindness they met with from the Working Men's College. At five o'clock the children, with the mothers, &c., of some, sat down to a plentiful tea, which they thoroughly enjoyed, and at half-past six the presents, which had previously been hanging from two large Christmas trees placed in the centre of the hall, were distributed among the young guests, greatly to their delight. Later in the evening an entertainment, similar in character to that of the previous night, was given, and passed off successfully.

SOUTHWARK WORKING MEN'S CLUB AND INSTITUTE, Broadwall, Stamford Street.—The annual meeting of this club was held in the large club-room on Monday. Stephen S. Tayler, Esq., was in the chair, and the meeting was addressed by the Rev. H. Solly, and Mr. Symonds, the secretary. The latter gentleman gave a very interesting report of the proceedings of the club. The number of members at present on the books is about 130; 70 or 80 more would make the club self-supporting, and surely there need be no difficulty in getting this additional number of men out of that thickly-peopled district. The amusements are chess, draughts, bagatelle, quoits, &c. About thirty concerts have been held on Saturdays. There is a rowing-club in the summer which brought numerous members, but which last year somewhat disappointed expectation; it is hoped, however, that next summer, with good management, it will be as successful as it deserves to be. There are classes for elocution, chess, drawing, and shorthand. The age for admission as members is 21, but youths of 18 may be received as *associates*, by a card signed by two members of the club. At one time too many youths were admitted, and they were found to be very troublesome; and the excess of their numbers over the number of older members nearly ruined the club. This club is much indebted to their generous and excellent president, Mr. Tayler, Peckham Rye. The secretary states that the presence of the president has a wonderful effect in keeping good order and transacting business. He also complains that, in the absence of the chairman, the members do not observe business rules, and proposes that the Working Men's Club and Institute Union should print a large bill, to be hung up in each committee room, giving information respecting the usual rules observed in public meetings, and showing the duties of chairman, secretary, and vice-chairman. The club are in debt to Mr. Tayler about £170, on the building repairs and fittings, and in order to pay this they are anxious to increase the number of members. This should be easy in such a populous district, especially when we consider that it is *the only club* on the Surrey side of the river.

Correspondence.

*** *We shall be happy to receive any information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE LEICESTER WORKING MEN'S CLUB.

To the Editor of the WORKING MAN.

SIR,—The paragraph in your impression of February 3, under the head of the "Leicester Working Men's Club and Institute," contains statements which are not altogether correct. The facts of the case are these:—A large majority of the committee were in favour of admitting malt liquor, subject to such restriction that might be deemed advisable; as also were several gentlemen not upon the committee, who had consented to become trustees. But desirous of consulting the wishes of those whose names were not on the books as intending members, a circular was issued, addressed to members and intending members requesting them to attend a meeting at the Town Hall, the business of which you will ascertain by a perusal of the circular, a copy of which I enclose. The committee, trusting to the honour of the Leicester working men, took no means to ascertain at the doors whether persons who entered were members or not; the consequence was, that the teetotalers—who to their honour are ever zealous on their *one idea*—assembled in large numbers; amongst them, in the body of the hall, practised speakers on that point, who were not members, and who had not expressed their intention to become members, but who came for the sole purpose of excluding beer, which they accomplished by a large majority. The chairman, being informed by the secretary that a great number of those present had not given their names, appealed to their honour to come forward and enrol themselves. Eighteen responded to this invitation, giving their names only. Out of this number the secretary has only seen one since, although it has been published in the local papers that cards of membership may be obtained of the secretary. That one has been added to the provisional committee, and he declares himself in favour of the admission of beer for those who may require it. During the time the names were being enrolled, a member of the club protested to the chairman against the decision of that meeting. The names of the committee of management carried at that meeting were the same, with few exceptions, as the provisional committee, and the names added have since been received by the provisional committee, who had power to add to their number. After this decision, the gentlemen who had promised to become trustees, declined, and a fortnight passed in endeavouring to find trustees—apart from the teetotalers—but failed. One of the most influential gentlemen in the town amongst the teetotalers gave his name, on the understanding that there was to be no beer; but the committee did not think it advisable to proceed on so slender a basis, and with such little chance of success. They did not wish to give the club the character of being allied to any party—not disparaging in the least the efforts of the teetotalers—but wishing to give the club a wider range, that would embrace all working men, to offer them the means of recreation and enjoyment, with no temptation to excess; to enable them to get a glass of ale, without the inducement of taking two for the good of the house; to enable them to see in their club examples of moderation, and to have means of enjoyment where books, lectures, discussions, readings, and music would do much to improve their habits and condition. The club, therefore, came to a dead lock. The secretary, and other active members of the committee, canvassed a great number of parties who had given their names, and found that but very few were present at that meeting; and ascertained in the workshops that many who had until then withheld their names, would join the club if established upon a broader principle. The committee, therefore, at a meeting in the mayor's parlour, Rev. E. J. Allen in the chair, set aside the decision of the general meeting. For the reasons above stated, and at a subsequent meeting, the same gentleman in the chair, January 4, 1866, it was carried, with one dissentient (that gentleman having since retired), that malt liquor and light wines should be admitted, subject to such restrictions that shall be thought advisable. Since that time the committee have met with numerous obstacles in getting premises suitable for them; they are, however, very happy to state that they have at length succeeded.

A circular is in preparation, addressed to the upper classes, asking their support to raise funds to furnish the premises. The secretary has received promises of £5 each from a number of gentlemen to head the list, and the committee feel confident they shall raise the necessary funds in a very short time. Active steps are now being taken by the committee to engage a resident manager, and to furnish the premises, and expect to be able to announce very soon the day of opening. JOHN COATON,

53, *Luxton Street, Leicester.* *Secretary.*
February 13, 1866.

THE PARKS OF NATURE.

To the Editor of the WORKING MAN.

SIR,—Your article in No. 7, on the "Parks of Nature," prompts me to call your attention to the scandalous enclosure of Chigwell Common, now in course of proceeding, but which I have for the past several years stayed from enclosure by proceedings against the Lords of Manors, and notices to the Enclosure Commissioners, which *to this time* has had the effect of stopping their attempt, in order that I might see what the Government purposed doing, which it appears we shall now soon know.

I have brought two actions, which the Lord of the Manor is defending, in reference to 100 acres filched from our Common, and have ready notice of action against the Enclosure Commissioners; so that, if Mr. Cowper does not put a stop to them, I shall, and cause a delay of their award.

I have worked hard at this now ten years, and may justly claim to be the pioneer of the new enclosure movement; and I recently caused a memorial to be placed at a Cabinet Council by Sir George Grey before the Queen, praying that the still unallotted portion of Chigwell and Lambourn Commons should be appropriated as a People's Park, and called "The Royal Albert Forestal Park," for which it is *now prepared by Nature;* and as I got 50 acres allowed for a recreation ground of the forest in 1862, and the Enclosure Commissioners have *about £4,000 in hand*, the expense would be trifling.

If you would give me a helping hand in your Journal—for I am working alone, and have spent several hundred pounds in the matter—an article in your excellent publication at this particular moment would assist my endeavour.

Apologising for troubling you with this, I remain, yours obediently, G. SHILLIBEER.

Grove House, Chigwell Row, Essex, N.E.,
14th February, 1866.

TRADES UNIONS.

To the Editor of the WORKING MAN.

SIR,—I, like a "Trades Unionist," who recently addressed a letter to you, do not agree with your article on Trades Unions, and I consider the conclusions come to in that article are not correct. You say the "trade feeling" is all that can be got from trades unions, and that the workman should aim to be a thinker and an artist. Well, to my mind, the working artisans of England are both thinkers and artists. I need only instance the industrial exhibitions of the last few years to prove that they can both conceive and execute. But, sir, you seem to think that trades unions encourage strikes; while the fact is the union is to obtain what is wanted without force—to make propositions in a fair and honourable manner, which, coming from a united body, are more likely to be heard than when made by single individuals. If workmen had to be dealt with singly the rate of wages would be lower, and the clever, intelligent workman would have less chance to rise in the social scale.

I would just instance the late iron lock-out, to show that the workmen are more moderate, though unionists, than they get credit for. The masters proposed to lower their workmen's prices 10 per cent. The men considered the matter over, and said they would accept a reduction of 5 per cent. This the masters would not agree to, but the men said, "We have met you half-way; that is fair to both parties." Well, then, the men, being united, were determined to accept no other terms; they were assisted by their co-workers in other parts of England, and what was the result? The masters used every possible means to coerce their men, who, as a last resource, adopted emigration. At last the masters, after causing great privation, offered their men the very terms proposed by the workmen in the first instance—namely, 5 per cent. reduction.

I am also prepared to prove that there are nobler ideas among unionists than the trade feeling: the union I belong to allows sick-relief and funeral money, contributes to hospitals, gives relief to members out of work and those searching for employment, and aids them to get work through its secretaries, by that means keeping honest and hardworking men independent of parochial relief, and lightening the poor rates.

In conclusion, I wish every success to the WORKING MAN, and trust that it may continue in the same reasonable and moderate tone to discuss this important question,

I remain, yours truly,
Leeds, Feb. 13th, 1866. ANOTHER UNIONIST.

SCHOOLS OF ART.

To the Editor of the WORKING MAN.

SIR,—I see by the WORKING MAN that 16,000 odd is the number of all the scholars in the art schools put together, and the result is called "most miserable;" but can you wonder at it when the head school (and a magnificent one I own it is) is placed miles out of the way, and the branches charge 2s. entrance fee and 2s. a month, besides making the scholar find materials to work with? What working man can afford 6s. or 7s. outlay for one or perhaps two of his family for an accomplishment, however necessary it may be, in any business they may be destined to learn? I am afraid the "circumlocution office" have as usual tried "how not to do it," and laid out the largest amount of money to produce the smallest amount of good. The schools are not near full, and those who do go are of a class that can afford to lose more time than the working man, however anxious he may be to improve himself. If the hours were from 8 to 10 instead of 7 to 9, it would be better, as every workman does not leave off at 6 o'clock—and no entrance fee would be better still. I do hope that gentlemen of position and influence will lend their assistance to establish another museum within a more reasonable distance than that at Kensington, which one has to make holiday to go to, costing time and money, which we can ill afford.—Yours very respectfully, A CARVER.

TO CORRESPONDENTS.

G. N. (Glasgow).—We have already made arrangements for supplying in our columns a series of practical lessons in drawing.

T. H. (Dalton-in-Furness).—A member of a committee is not bound to vote either for or against a motion put to the meeting. When the chairman puts a motion, he first desires "All who are of opinion that this motion shall be agreed to, signify the same in the usual way;" and then puts the question, "On the contrary." How else can it possibly be decided whether the motion is carried or not? An amendment not having been proposed has nothing to do with it.

H. B. THORNE.—To make rose-pink, digest the Brazil wood, ground to powder, in cold water, in which one ounce of tartrate of potash to the pint is dissolved; precipitate by a solution of alum. Collect the precipitate on a filter, wash with cold water, and dry. The alum must be quite free from iron. The colouring matter of the wood may also be precipitated by a solution of chloride of antimony. Take 5 gallons of solution of chloride of antimony, strength 80 degrees Twaddel's hydrometer, and add 100 gallons of a strong decoction of Brazil wood; stir carefully together, and leave to settle for a few hours, then throw on a filter. When the liquid has passed through the filter, wash the residue with 20 quarts of water, and repeat this washing a second time. When the precipitate is drained, the pink is ready, and may be dried, or employed in the moist state. The colour may be varied from crimson to scarlet, by varying the proportions of wood and chloride of antimony.

H. T.—You can buy benzole and bisulphide of carbon at manufacturing chemists, such as Button and Co.'s, Holborn Bars. Chlorine gas may be obtained in suitable apparatus by pouring sulphuric acid upon common salt; sulphate of soda is formed, and chlorine liberated.

W. C. (Cattle Plague).—Unless you possess more knowledge on the physiology and pathology of the subject than the most eminent scientific men living, it is not probable your proposal will be listened to. Where science fails, empiricism is hardly likely to succeed.

J. UPTON.—Flint glass possesses greater dispersive power than crown glass; this quality is due to the oxide of lead used in its manufacture.

T. AGNEW.—Cast iron may be silvered by employing excess of chloride of silver in a cyanide solution of that metal, and otherwise pursuing the usual battery process.

A MASON.—A mixture of hydraulic lime and soluble glass is the best cement for cracks and flaws in stone. The mixture forms a mortar, which must be used at once, as it sets immediately.

S. B. T.—Picric acid is prepared by treating carbonic acid with nitric acid.

Government of South Australia EMIGRATION DEPARTMENT.

FREE PASSAGES are granted to South Australia, in vessels chartered expressly by H.M. Emigration Commissioners, to PLOUGHMEN, farm servants, miners, masons, bricklayers, wheelwrights, blacksmiths, sawyers, carpenters, gardeners, grooms, collar and harness makers, country shoemakers, &c.

ALSO TO SINGLE FEMALE DOMESTIC SERVANTS.

Further particulars and forms of application may be obtained at the office of the Emigration Agent for the Government of South Australia, 5, Copthall Court, London, E.C. [9

QUEENSLAND GOVERNMENT EMIGRATION OFFICES, 2, OLD BROAD STREET, LONDON.

Emigration to Queensland—FREE GRANTS OF LAND.—All persons not having before resided in Queensland, paying their own full passages to the Colony, receive a £30 Land Order—equal to thirty acres of land—for each member of their families of twelve years and upwards, and a £15 Land Order for each child between fourteen months and twelve years. Free and Assisted Passages are now given without restriction as to age, to persons of the following occupations:—Shepherds, ploughmen, road-makers, quarrymen, professed gardeners, miners, carpenters, masons, bricklayers, blacksmiths, wheelwrights, shipwrights, &c. Also female domestic servants of good character.

HENRY JORDAN,
Agent-General for Emigration for Queensland.

Government Emigration to NEW ZEALAND.

FREE PASSAGES to CANTERBURY, N.Z., are granted by the Provincial Government to female domestic servants, and Assisted Passages to farm workmen and certain descriptions of mechanics.

Particulars of conditions may be obtained, personally or by letter.

JOHN MARSHMAN, Emigration Agent for Canterbury,
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Emigration.—Passages to all PARTS OF THE WORLD.—Every information free of charge. Best ships. Cheapest rates. Goods shipped and insured.—F. BASSIL, 139, Leadenhall Street, London.

Assisted Passages to Melbourne.—Apply to R. R. ALEXANDER, Secretary, Victoria Emigrants' Assistance Society, 27A, Bucklersbury, Mansion House, E.C.

CHEAPEST EMIGRATION TO AMERICA, £5.

New York and Portland, by steam, weekly, £5; cabin, £15 15s. Baltimore, £5 5s.; cabin, £15 15s. New Orleans, £6 6s.; cabin, £25. Sailing Ships to New York, £3 5s.

R. MONTGOMERIE and CO.,
5, Ingram Court, Fenchurch Street, E.C. [9

Queensland.—Black Ball PASSENGER LINE.—New arrangements with H. M.'s Colonial Government. Reduction of steerage fare to £15. Land Orders £30, to all classes.

STAR OF ENGLAND, for BRISBANE, Moreton Bay, direct, packet for 28th February.

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Apply to JAMES BAINES and CO., Liverpool; all Agents for the Black Ball Line; and T. M. MACKAY and CO., 1, Leadenhall Street, London, E.C.

THE WORKING MAN WILL FIND

"Judson's Simple Dyes" both Useful and Amusing. Any one can use them. Anything can be dyed with them in ten minutes. Price Sixpence per Bottle. Of Chemists at Home and Abroad. [10

Inventors Protected by Patent OR REGISTRATION at fixed and moderate charges. The "Inventor's Manual," free by post, or gratis on application. Apply to Mr. BREWER (late Barlow and Co.), 89, Chancery Lane, London.—Established Twenty-one Years. [11

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N.B.—Directions for Measurement forwarded upon application by letter. [12

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Practical Scientific Books on ARCHITECTURE, ENGINEERING, SURVEYING, MINING, BUILDING, AGRICULTURE, MONUMENTS, DECORATIONS, &c. Published by ATCHLEY and Co., 106, Great Russell Street, London, W. New List of Works sent free to order by post. [15

Workmen's Wages.—LAXTON'S TABLES, to enable Workmen at a glance to calculate their own Wages. Masters' Edition, cloth and gilt, 2s. 6d. (32 stamps); Workmen's Edition, folded for the pocket, 1s. (13 stamps). 34, Arundel Street, Strand. [16

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Prime 36 lb. Buenos Ayres butts, 1s. 6d. per lb. Prime 32 clean foreign, 1s. 3d. per lb. A very prime lot of enamelled seals, 4s. per lb. Men's and Women's soles, 1s. 4d., 1s. 6d., 1s. 8d., 2s. Scotch hides, 1s. 10d. per lb. Elastic webs, direct from the loom.

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John Moseley and Son, 17 and 18, King Street, and 27, Bedford Street, Covent Garden, London, W.C., CUTLERS, GENERAL MERCHANTS, and MANUFACTURERS OF MECHANICAL TOOLS—Saws, Tool Chests, Turning Lathes, Garden Tools, &c., Wholesale, Retail, and for Exportation. Established a Hundred Years. Reduction in the Price of Moseley's Warranted Saws, Genuine Gauged Plates:—

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28-inch Best Half Ripping Saw	...	0	8	0	each.
26 " Hand Saw ...	...	0	7	6	"
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14 " Iron-back ditto... ...	...	0	5	6	"

Same make, Second Quality (by some called best) of each of the above, 1s. less.

Carriage Free (if to the amount of 40s.) on receipt of Post Office Order, or postage stamps.

N.B.—These Saws are the same make as those that have given such great satisfaction for the last forty years.

NOTICE.—Messrs. MOSELEY and SON beg to announce that, in order to enable Country Workmen and others to obtain their superior Tools and Cutlery, they are now prepared to forward, direct from their Establishments, Parcels to the amount of £5 and upwards, to any part of the Kingdom, Carriage Free. Cash by Cheque or Post Office Order. [19

Tremeschini's Paraffin Lamp. This perfected Lamp for burning Mineral Oils, without the possibility of explosion, and entire absence of smell, is sold wholesale by the agent, H. Mayer, 4, Liverpool Street, City.

*** This Lamp is fully described in No. 1 of the "WORKING MAN." [20

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The Advertiser, who is practically acquainted with the Meat Trade, wishes to call the attention of the working classes, and others affected by the present high prices of meat, to the great facility with which Societies of the above kind may be worked, either in town or country, in connection with the London Dead Meat Markets, and offers his services to such, whether contemplated or already in course of formation, for the purpose of placing their arrangements on such a basis as to prevent the recurrence of the disappointment and disaster which have hitherto attended them.

Address W. E. R., Office of this Paper. [21

Why Give More?—Excellent TEAS, black, green, and mixed, are now ON SALE, for family use, at 1s. 8d. per lb., at NEWSOM and CO.'S, Original Tea Warehouse, 50, Borough. Established A.D. 1745.

Coals, 16s. 6d. per Ton, Cobbles; Derby Bright, 19s.; Second Main, 20s.; best, 21s. 6d.; best Silkstone, 21s. Direct from the pit to the consumer.—C. S. HUBBARD, 32, Great Marlborough Street, Regent Street, or 50, Albany Street, Regent's Park. No travellers or agents employed.

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The Reserve Fund in hand is upwards of six times the amount of the annual life income.

THOMAS PRICE, Secretary.

Working Men's College.—BUILDING FUND.—Subscriptions are requested in order to allow the Proposed Buildings to be begun in the Spring. The College is self-supporting; but increase of numbers has made additional Rooms necessary. Estimated cost, £3,000. Already subscribed, £760, including £30 5s. from the PRINCE OF WALES, and £278 from the Principal and Teachers. See fuller statements in current numbers of *Cornhill* and *Macmillan's Magazine*. Subscriptions received at the College, 45, Great Ormond Street; the London and County Bank, Oxford Street; and by the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple.

Working Men's Club and INSTITUTE UNION.—President, Right Hon. Lord BROUGHAM. The continually-increasing extent of the operations of this Society, which has been of essential benefit to many thousands of Working Men and their Homes, renders a proportionate increase of its funds urgently necessary. The Council, therefore, confidently APPEAL to the Public to grant increased support to this truly useful movement. Contributions may be sent to the Treasurer, Henry Hoare, Esq., Jun. (Messrs. Hoare and Co., Fleet Street), or to the office, 150, Strand, where full information may be obtained.

HENRY SOLLY, Secretary.

Paris Exhibition, 1867.—All demands for SPACE from intending Exhibitors must be sent, marked "Paris Exhibition," to the Secretary, Science and Art Department, South Kensington Museum, London, W., on or before 28th February, when the lists will be made up.

NOTICE TO BUILDERS.
Office of Works, &c., 12, Whitehall Place,
Feb. 13, 1866.

The Commissioners of Her MAJESTY'S WORKS and PUBLIC BUILDINGS are prepared to RECEIVE TENDERS for the ORDINARY WORKS and REPAIRS to PUBLIC BUILDINGS, &c., in the London District. Printed Schedules, Specifications, Conditions of Contract, and form of Tender may be obtained at H.M. Office of Works, No. 12, Whitehall Place, London, on and after the 19th instant, between the hours of Eleven and One, upon payment of 10s. The Tenders are to be delivered at the Office of Works on or before Twelve o'clock at Noon on Monday, the 5th day of March next. The Commissioners do not bind themselves to accept the lowest or any Tender.

ALFRED AUSTIN, Secretary.

Working Engineer, &c., WANTED, at the St. Marylebone Workhouse, Northumberland Street, Marylebone Road. He must be a skilled workman, able to attend to the steam boiler and other apparatus in the laundry and washhouse, to do the smith's work about the building, to attend to the fire-engine, hose, and mains, and other duties under the orders of the Master. Wages 23s. per week.—Further particulars may be obtained on application to the Master, Mr. G. E. Douglas, at the Workhouse. Letters of application, stating age and previous occupation, accompanied by testimonials, to be forwarded to the Secretary on or before Saturday, the 24th instant, and candidates are required to be in attendance at the Board-room of the Workhouse on Monday, the 26th instant, at eleven o'clock in the forenoon.

By order, JOSEPH BEDFORD, Secretary.
Secretary's Office, St. Marylebone Workhouse,
Feb. 15, 1866.

University College, London.—SUMMER COURSE of CHEMISTRY (Theoretical and Practical, including the subjects of the Matriculation Examination of the University of London). Professor WILLIAMSON, F.R.S., assisted by Mr. C. H. Gill, F.C.S.

This course will consist of about forty lessons, commencing on WEDNESDAY, April 11, at 11 a.m.

Fee for the class, £4, including cost of materials and apparatus.

Feb. 8, 1866. AUG. DE MORGAN,
Dean of the Faculty of Arts;
CHAS. C. ATKINSON,
Secretary to the Council.

Albert Veterinary College (Limited), Queen's Road, Bayswater. Professor John Gamjee, Principal. Subscribers' fee, £2 2s.; Tradesman's, £1 1s. per annum.

Public Examination in ELEMENTARY DRAWING of the SECOND GRADE at SOUTH KENSINGTON.—PUBLIC EXAMINATIONS in DRAWING, conducted by the Science and Art Department, will be held on the 12th, 13th, and 14th of March, 1866. Candidates must assemble at 6.30 p.m. or 8 p.m., and the papers will be given out as follows:—

March 12—Freehand Drawing, 7 p.m.; Geometry, 8.30 p.m.
March 13—Model Drawing, 7 p.m.; Perspective, 8.30 p.m.
March 14—Mechanical Drawing, 7 p.m.

The Examinations will be of the second grade only, and will be open to male and female candidates above twelve years of age, who are not attending elementary day schools for the poor.

Persons who wish to be examined must apply, before March 3, to the Secretary of the Science and Art Department, South Kensington, stating their names and addresses, and the subjects in which they are prepared to be examined. Masters of private schools wishing to have several of their scholars examined, are required to furnish the number who will present themselves for examination in any of the above subjects of the second grade.

By order of the Committee of Council on Education.

Hercules Insurance COMPANY (LIMITED). FIRE, LIFE, and MARINE. CHIEF OFFICE: 25, CORNHILL, LONDON, E.C.

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J. W. ORAM, Secretary. [22

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It provides a *Weekly Income during Sickness*, a *Pension in Old Age*, £10 to £200 *at Death*, and *Endowments* up to £200. 1s. 7d. per month at 23 years of age, will secure 15s. a Week in Sickness, with Medical attendance and Medicine. 4d. per month at age 18 will secure £10 at Death. 1s. 1d. per month will secure £10 at a period of 13 years hence. Agents wanted in Districts not represented. Rules, 6d. Tables and every information may be obtained by applying to the Agents, or

FREDERICK AUGUSTUS NEW, *Secretary.*

Agents Wanted in Districts not represented.

Now ready, price Sixpence,

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"He wishes entire success to the work."—*Lord Brougham.*

London: WILLIAM TWEEDIE, 337, Strand. Manchester: Abel Heywood, Oldham Street; and may be had of the Agents of the "Victoria," or ordered of any Bookseller. [7

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THE WORKSHOPS OF THE WORLD.

NEEDLE-MAKING AT REDDITCH.

Redditch, the Metropolis of Needle-making.

ONE hundred millions a week! One hundred millions of needles made in the Redditch needle district alone, each week in the year, and distributed over the world from Kamtschatka to New Zealand

At what date the manufacture was introduced into this place is uncertain—tradition says in Cromwell's time. However, one firm at least has existed from the year 1730; and during the last fifty years Redditch has been gradually growing in size, and the amount of its trade, until, from an insignificant village, it has become a thriving, busy town, leaving far behind in the race Studley, Alcester, and the adjacent needle districts, and making itself the chief emporium of needles for the whole world. It is beautifully situated, about twelve miles from Birmingham, upon the boundary line between Worcestershire and Warwickshire, but chiefly in the former county. Population, about 6,000.

The town possesses a handsome Protestant church, also one devoted to the Roman Catholics, and chapels in connection with the Wesleyan,

Independent, Methodist Free Church, and Primitive Methodist denominations. It has also a newspaper, a literary institute, a working-man's institute (the latter well conducted and supported), good national, Wesleyan, and private schools, &c.

Nor are these means of education without their legitimate effect upon the community. There is a great and visible change in the habits, deportment, and modes of speech of the artisans. Thirty years ago they were comparatively rude and uncultivated, and used an uncouth, broad, Worcestershire dialect, half unintelligible to strangers; but now all that is rapidly passing away. They are very neat and clean in appearance, as compared with the mechanics of other manufacturing towns, orderly in manner, and generally intelligent, whilst not a few evince powers of thought and intellect of no mean order.

We are indebted to the courtesy of Mr. Richard Turner, manufacturer, of Redditch, for the illustration of needle-making at the head of this article, and will now proceed to describe the different

PROCESSES OF MANUFACTURE.

The wire for needle-making is procured from Sheffield or Birmingham, in coils varying in size and weight with the different sizes of needles required. Each thickness, or "size," of wire is gauged with the utmost care, to ensure perfect uniformity, and a coil of medium size will produce from 40,000 to 50,000 needles. After being gauged, it is taken to be "cut and rubbed," the first of which processes is performed in a peculiar and somewhat laborious manner. A pair of very large shears are firmly fixed in an upright position against a beam of wood projecting from the wall, leaving one arm free. The workman, first of all, cuts the coil through; then, taking an end of the bundle in one hand, and a gauge of length in the other, places the wires between the blades of the shears, presses powerfully forwards with his body against the loose iron arm, and cuts off a quantity, each one exactly the length of *two* needles. These wires are, of course, curved in the same proportion as the coil; and, to remove this curvature, when all are cut they are adjusted within two iron rings, put in an oven until red-hot, and then "rubbed" backwards and forwards with a curved iron bar placed between the rings, which causes the wires to press against and over each other, and in a very short time all become straight. The treble-barred instrument shown on the extreme right of the picture of "hardening" in our illustration, is used for the larger sizes.

They are next taken in hand by the "pointers," whose operations have for many years excited especial attention, in consequence of the extremely unhealthy nature of their work. The wires are sharpened, or "pointed," at both ends upon a dry stone revolving with great rapidity, and continually throwing off a cloud of fine particles of stone and steel, which, inhaled by the workman, effect certain death at an early age. For years the men refused to adopt means proposed for the at least partial obviation of this fearful consequence, from a fear lest their high wages should be reduced; but, after a strike on their part in 1846, of nearly a year's duration, which inflicted great distress upon themselves and much disturbed the trade, they agreed to resume work on the terms of the manufacturers, who determined upon the introduction of the "fan." This excellent invention (see illustration of "pointing") consists of a sheet iron hood partly embracing and covering the stone, connected with a tube, through which a continual and strong current of air is drawn, which current carries with it most of the stone and steel dust. After a time the pointers began to appreciate the benefit thus obtained, and the lessening of the risks incurred has had a greatly ameliorating effect upon their conduct and mode of life away from the mills.

The pointing is performed thus:—Taking a number of the wires in his left hand, the workman spreads them evenly; then, placing the palm of his right hand upon them, the ends of the wire are applied to the stone, and by a slight movement of the right hand to and fro, they are made to rotate until carefully tapered on all sides. Several attempts have been made to apply machinery to this process; and it seems likely ultimately to supersede the hand labour, as, at the present time, some machines are in use, which are said to succeed very well with needles of ordinary qualities.

From the pointing-mill we proceed to the stamping-shop. The stamper, by means of a die, forms in the middle of the wire the shapes of two heads, and partly pierces the eyes. The die is fixed to the bottom of a heavy mass of iron, which slides up and down between two upright bars, and is set in motion by a cord which passes over a pulley, and communicates with a stirrup upon the workman's right foot. (See illustration.) Holding the wires in his left hand, he rapidly, with his right, places them one by one upon a fixed die, exactly under and corresponding in form with the one in the upper and movable mass of iron, or hammer; then, by elevating the foot, the upper die is allowed to fall upon the wire, and thus the heads and eyes are shaped. This operation is executed with great quickness, and the frequency with which the "tap" of the die recurs is extraordinary.

Next they are "eyed." The girl, as shown in our engraving, with one hand places the double needle in its proper position, with the other pulls towards her a handle communicating with a screw, in the lower end of which is fixed a double-pointed punch. These points are of the same form as the eye-marks left by the stamp, and as the workwoman pulls the handle, the screw turns slightly, the punch is lowered, and completely pierces the two eyes.

"Spitting" follows, and is done by children. Upon two short wires, or "spits," the double needles are threaded, ready for the filer, who files off the burr caused by stamping; by a simple movement bends and separates the needles at the point of junction between the two heads, and thus leaves on each spit a row of *single* needles. He next files the heads into shape, and the needles are now made.

The tool-maker or skilled artisan who fashions the dies and punches, is the most important personage in a stamping-shop, and his work is, perhaps, the most delicate and important in the entire manufacture.

Until about forty years since, needles were made by hand, in a very slow, and, therefore, expensive manner. The introduction of stamping-machines threatened to so entirely ruin the hand-workers that they became infuriated, and in 1830 riotously destroyed all the stamps they could find in Redditch. This resulted in the imprisonment of the ringleaders. More machinery was introduced, and very soon the fate of hand-made needles was sealed.

After the stamping comes "hardening," which, also, is a matter requiring great nicety and experience. Every housewife knows the futility of attempting to sew with a badly-tempered needle. The hardener spreads the needles upon an iron plate or "pan," and puts them in a fiery hole until red hot, when they are suddenly cooled by being poured into a caldron of oil or water. (See engraving.) In this state they would snap very easily, and be of no use, and are, therefore, "tempered," by being again heated to a certain point, either upon a metal plate over a slow fire, or by being placed in an oven, and after either operation allowed to cool gradually. They are next "picked," or rolled over one by one under the finger upon a smooth stone, by which means the "crooks" caused by hardening are detected, and the bent ones thrown out, to be afterwards straightened by gentle taps of a very small hammer upon a steel anvil. Hardening in water crooks a very large proportion; in oil, very few are bent. All were done in water previous to 1840, when in that year Mr. Joseph Turner, of Redditch, father of the before-mentioned gentleman, introduced the oil process, but was met by a storm of opposition from the straighteners. Indignation meetings were held; he was repeatedly mobbed, and at last obliged to leave the town, with his family, work-people, and business. He removed to Stratford-on-Avon (fifteen miles away), but found the place unsuitable, and after a few years returned to Redditch, where, by that time, most of the manufacturers had adopted the improved method, and now nearly all needles are hardened in oil.

From the hardener's, they are taken to the scouring-mill to be made bright, which is effected in the following manner. Upon pieces of canvas, the needles are placed in parallel layers, and have a little oil and emery (a certain kind of stone reduced to powder) poured over them. The canvas is then tightly rolled, with the needles inside, and placed under a "runner," which is a heavy slab of wood made to move backwards and forwards, by means of machinery, upon a fixed bed or bench—in fact, like a mangling-machine. They are kept rolling to and fro under the runner for a period extending sometimes to the length of eight or nine days. The rolls are at intervals taken out, opened, the needles removed to fresh pieces of canvas, fresh oil and emery are added, and the whole then replaced under the slab; until, by the end of the specified time, the long-continued friction of the needles against each other has brought all to a uniform state of brightness.

The time employed in scouring is proportioned to the different qualities made. They come in a confused mass from the scourer's, but are quickly "even'd," or brought parallel with each other once more, by being shaken in a peculiar manner in a shallow tin pan. Next a girl "heads" them—that is, turns all the heads in one direction—and, also, picks out those which may have been broken whilst scouring. They are then spread upon a flat stone, with the heads projecting slightly over the edge, and "blued," or softened, in the eyes with a red-hot bar, previous to the subsequent operation of drilling or burnishing. Drilling is done with a small sharpened bit of steel, made to turn round rapidly, which is passed through the eye of each needle in succession.

In burnishing, they are threaded upon wires, and violently shaken by means of an ingenious little contrivance. Both these operations are intended to clear away any remaining roughness in the eyes, and prevent them "cutting the thread."

After this they are ground, set, and finally polished. The workman spreads some needles upon his left forefinger, with the points inwards; places his right thumb upon them, and slightly touches the heads upon a very small grindstone, at the same time rolling them over by a movement of the thumb. They are then turned over, and the points "set" in a similar manner. He next, holding them in the same way, rubs them upon a horizontal "buff" (which is a small cylindrical piece of wood covered with buff leather) and causes every part of the needles to come in contact with its surface until an exquisite polish is the result. These grindstones and buffs are all made to revolve at a great speed by means of steam power.

The needles are now ready to be counted and folded in the small papers familiar to all ladies; or they are placed in "patent quivers," "synoptical cases," and the like, as the fancy of the trade may dictate. The labels are pasted on by girls and boys, and dried in a heated room. Tying up and packing complete the long series of operations performed upon these little implements of daily use; and it becomes a matter for some surprise that, in spite of the many various processes, they can yet be sold at the low prices usually charged.

Redditch is also the centre of a large trade in fish-hooks, crochet and netting-needles, knitting-pins, bodkins, &c.

A Penny Reading.

At the Working Men's Club and Institute to which I belong, we follow the general fashion of getting up a Penny Reading; and as several of our members attend a singing-class, and others have wives and sisters with sweet voices, who also belong to the class, and are good-natured enough to give us their assistance, the additional feature of music adds greatly to the attraction. We muster about a dozen voices, and can ensure the creditable performance of many of our fine old glees and madrigals, besides more modern compositions. "By Celia's Arbour" goes famously; so do the Earl of Mornington's "Here in Cool Grot" (rather ticklish that in some of the soft passages), Danby's "Awake, Æolian Lyre" (we are hardly strong enough in the basses for the "See it pours" burst), or the quaint old madrigal, "My Lady is as Fair as Fine." Many evening hours, which would otherwise have been wasted, have been devoted to musical practice; and, besides, a good ear and a good will go a long way in music.

So we intersperse the readings with singing; and I wish the former were always as good as the latter. Few of us read well; and yet it is an accomplishment well worth acquiring. If we never read more aloud than now and then a bit from the newspaper to the wife, a short story to the young ones, and the regular chapter at fitting times, it would be all the better if we could pro-

nounce the words properly, read articulately, clearly, and naturally, and observe just emphasis. In fact, reading well is a very delightful art, and gives a vast amount of pleasure. Yet how few there are who are equal to it! Not among us workmen only, who, perhaps, may be excused, as we have not much time to study any of the graces, but among the better educated classes.

We have abundant proof of this at our Penny Readings. Our own members are shy in coming forward; so we are favoured with selections by the gentry and professional men of the neighbourhood. I hope they do not think anything is good enough for us; but it is a real fact that not one out of three appears to have the slightest idea of the requirements of good reading, or, the selection of pieces most appropriate. If I allowed my name to be put down to sing a song, I should previously have some confidence in my own powers, and, at any rate, would try to sing. But some of our friends—with the best intentions, I suppose—appear never to have thought of asking themselves the question, "Can I read, or can I not?" There is reading and reading. If a gentleman with a weak voice offers to read one of Macaulay's ballads, or a selection from "Marmion," one would suppose he would try to convey some idea of the vigour and variety of the style, the dramatic characterisation, the beauty of the verse. If he thinks he has no power to do that, he had better not try it, but choose some mild and level piece more within his scope. Yet I have known a gentleman undertake one of these spirited "Lays"—which, if properly read, would rouse you like the blast of a trumpet—and standing with the book close to his mouth, go on for twenty minutes in a low, indistinct gabble, not audible beyond the occupants of the third or fourth bench, and quite unintelligible to them. I have known another select a piece depending entirely for its humorous effect on the brogue or dialect in which it is written, and preface his performance by saying that, as he is not a mimic, he will not attempt the dialect. Others, having obtained possession of the platform, seem determined to hold it, and convert their reading into a lecture, interspersed with halting remarks and quotations, very difficult to find in a big volume.

But there are others who read well—with taste, expression, and energy, where energy is required; then we have a rich treat, for a well-managed voice, capable of the varied inflections which good writing demands, and guided in the case of poetry by a correct ear for metre, is music indeed. If our other friends, who are apparently unconscious that elocution is an art, would study the matter a little, they would find how much there is to learn, and how very well worth learning it is.

Condition of the Working Classes in Ireland.

Perhaps it may be interesting to the English readers of the Working Man to know something of the Irish working man and his present position. We seldom have this class of subject fairly, and calmly, and candidly brought before the public by those thoroughly acquainted with the question. Our public journals deal with topics of this nature in a partisan spirit, not calculated to benefit the working men of our country, nor advance their interests. In England the Irish working man is too often, we regret to say, seen to a disadvantage. Our object shall be to treat the subject in the spirit of the Working Man, and endeavour to place before the readers of its pages some important facts, and we trust, reasonable deductions drawn therefrom.

In an agricultural country like Ireland, the condition of the great body of the working classes more nearly resembles that of the Dorsetshire labourer than it does any other of the English population. In Ulster—especially around great centres like Belfast and Londonderry, where the linen manufactures flourish—there is a nearer approach amongst the daily toilers to the position of the population of the busy hives of industry in Lancashire and Yorkshire. These two great classes of working men are to be found here as in England. Then we have, of course, the tradesmen and artisans—the skilled labourers—who find employment in providing for the wants of the rest of the community—for the other different classes of society. In many instances, too, the small farmers are tradesmen or labourers, seeking to combine both callings in one person, which we shall see does not tend to give success in either business.

The Irish working classes of the past occupied a different position to that which they do at present, just as happens to be the case also in relation to the working men of England. The "hedge school," which almost ceased to exist some half century ago, did produce, occasionally, rather superior scholars from amongst the Irish peasantry and labouring classes. But there were no means in Ireland for educating the masses. In days passed away for ever, it was criminal to impart education to the great body of the Irish population. Yet, amid many difficulties, even the humbler classes did try to acquire knowledge in its simplest forms. These days are, however, banished. The National System of Education has spread its schools over every part of the land—into every nook and corner of the country. The natural result has followed—the people, the great millions, have become fairly instructed in the rudiments, at least, of a good English education. The National Schools of Ireland—apart from any views politicians may hold as regards a united, or denominational system—are, upon the whole, the best in the United Kingdom. A working man's son, for the fee of one penny per week, and in many places wholly free, can receive instruction in all the branches of a good sound English education. The result has been, that the rising generation of working men occupy a different position to what their forefathers did, and their circumstances have been greatly changed.

An "Irish cabin" may still be seen occasionally; but we question if the day labourer in Ireland is not as comfortable as the same class in the agricultural counties of England. We know the reverse of this is often asserted, and the words of what is known as the "Devon Commission" report, are cited, that—"the Irish labourer is the worst fed, worst clothed, and worst housed of his class in Europe." A much more recent Royal Commission has disclosed the state of English labourers, and we are free to admit that the Irish are better off. We observe, too, that the Scotch ploughmen are now calling attention to how they are treated, when in wet and cold they are left to sleep in some barn, or other part of the office-houses, without fire to dry their wet clothes, which, therefore, they have to put on wet the following morning. Now, it is due to our Irish farmers to say, that this could never occur in Ireland. In ninety-nine cases out of one hundred, the Irish agricultural labourer, residing at the house of the farmer, is treated as one of the family almost. If he comes in wet, the warmest corner at the kitchen-fire is allocated to him, with a kindly word and a pleasant smile. If he can change his wet clothes for a dry suit, the female servants, or the mistress of the house, or her daughters, will take care that his wet working clothes are thoroughly dried during the night, and are made comfortable for him for morning. His wages may not be high, but he is kindly treated, and not too hard worked.

The daily labourer is different from the farm-servant. His dwelling may be an "Irish cabin," but the sketches given of these in books are mere fancy; or at most an exceptional instance is taken and treated as if it were the rule. Often have we seen the labourer's "cabin" neater, cleaner, tidier, and more comfortable, than the employer's residence. The labourer's wife may have been a servant at "the big house" of the local magistrate, or at the "glebe house" of the rector of the parish. She learned there to "keep things neat." But the farmer's wife had been brought up a farmer's daughter, with the pigs too often fed in the kitchen, with the geese and ducks allowed "the run" of the same apartment, with a mud-hole before the door into which all slops were flung; and she continues in the same habits, thinking only of rearing calves, pigs, making butter, paying the rent, and increasing the little horde in the "old stocking." The son of the Irish labourer is often left longer at school than the son of the smaller class of farmers, and on the whole the labouring classes have more desire to acquire education than the smaller class of farmers.

In Ireland it has become a habit to complain of the condition of the people, and to attribute it to misgovernment. Our object is to seek to show that the same position is occupied by labourers in even the most prosperous lands; and that if men are to rise to a higher status and more comforts of life, it must be by personal exertions and individual effort.

Want of knowledge of the state of labourers in other countries, makes too many here conclude that there is nothing in the world equal to the misery which they endure. We have none of the evils, permit us to say, in connection with farm labourers in Ireland, which are known in England. The "gang" system is unknown. Young people are not hired out in "gangs," to be treated almost as slaves, as the children of the labouring classes are in some agricultural districts in the South of England. The intermixing of the young of both sexes, and the fearful consequences which follow, are not known in Ireland. It would be impossible, too, to get an Irish boy or girl ignorant of the great leading truths of religion. We often see records of English children brought up without a knowledge of even the existence of a God, or an idea of what are his attributes, and of the duty mankind owes to him. Every child in Ireland is instructed in these things, and the result is a higher tone of morality—fewer illegitimate births, and infanticide is all but unknown.

We do not say that wages are altogether as high in Ireland for farm labour as in England. We, however, do contend, that the money earned is, on the whole, worth as much. The Irish labourer is never obliged to take part of his wages in beer, or spoiled cider. He seldom or never drinks these. He generally receives his wages in full, or else in "kind" of a valuable description, and such as he needs—potatoes, milk, &c. Fuel in Ireland is for the most part cheap. The farm labourer saves his own peat, and never wants in winter for a good fire, except it be his own fault. Provisions, too, are generally cheaper than in England. Flour, oatmeal, and Indian meal are readily procured at reasonable prices. Buttermilk can be had cheap; and if the wives of the labourers only knew better what excellent dishes could be made from the various vegetables which can be had by them at the most trifling cost, the condition of the Irish labourer would be, taking all points into consideration, little, if anything, inferior to his brother toiler in England, so far as the means of living are concerned, while in other features it is much superior.

We question, too, if, viewing all the aspects of the case, the Irish labourer in England is so "well off" as his brother in Ireland. We have seen the Irish working man in London, Liverpool, Manchester, Bolton, Preston, Dudley, Hanley, Newcastle-under-Lyme, and other places in England, and, while he earned more wages, we were rather inclined to believe that he had not even the same comforts as the same class in Ireland possess.

There are great trials and difficulties to be contended with by our day labourers, as by many other classes, but they are nearly all of such a nature that by individual and united effort of the men themselves, with the kindly approval, counsel, and aid of employers (and these can be had), they may sooner or later be overcome.

*Fish and Fishmongers.**

But very few portions of the British coast are barren ground to the fisherman; and the North Sea and the coast of Holland yield immense stores of marine food for the London market. Folkestone and Dover send whitings and soles, and the largest and finest turbot and brill. Mackerel come from Yarmouth, Norfolk, and Mount's Bay, and other parts of the coast of Cornwall. Sprats are caught almost everywhere, but more especially off the Kentish shore. It may not be out of place, *apropos* of sprats, to mention the fact—which has, however, nothing whatever to do with Billingsgate—that the sardines, with which the London grocer's shops are now so liberally supplied, are simply sprats. The sardine is a sprat prepared in a particular way for the table. They came originally from Sardinia, and hence their name. The fish are divested of head and entrails, steeped in brine, boiled in oil, then enclosed in air-tight tin cases, again boiled, and, unless the cases burst in the process, are then fit for market.

Besides Yarmouth and Holland, whence herrings were formerly chiefly supplied, both fresh and in a cured state, Scarborough, Whitby, and other ports on the coast of Yorkshire, and notably

* Concluded from page 119.

Scotland, now send immense quantities of this fish to market. Scotland, indeed, may be said to monopolise the trade in salted and smoked fish. The quantities of haddock, smoked and dried, of herrings, salted and kippered, of sprats, smoked and otherwise cured, sent from Scotland, are something enormous, and furnish an article of food cheap and nutritious, and which in its abundance is a modern gain. The rapidity of transit has improved a market which formerly was both scantily and ill supplied, and has shown that in the matter of a palatable food, the demand is governed by the supply. It has, however, been complained of late, that in order to accelerate the production, the method of salting has been less perfect. The plan now adopted of steeping the fish in brine, instead of rubbing dry salt into it, is more rapid, but not so efficacious; and a loss of flavour and power of resisting decomposition has been the result.

The whole of the south coast of England is an inexhaustible fishing-ground for almost every kind of fish to be found in our northern waters. Each species has its season, and are sought for accordingly. There are some fish caught in the English Channel which, from some special causes, rarely reach the London market. The hake, for instance, a delicate and nutritious fish, very popular at Portsmouth, is rarely, if ever, seen on the banks of the Thames. The waters of the North Sea are also especially prolific of fish of many valuable sorts, and the celebrated Dogger Bank, off the coast of Holland, furnishes codfish in undiminished quantities. The English and Scottish coast, bordered by the North Sea, is a famous nursery for fishermen, on account of its abundant supplies of fish. Holland, besides its other marine treasures, supplies London with salmon of a very large kind, when the Scottish and English rivers are still undrawn; and so well are the arrangements made, and so rapid is the conveyance from the fishing-ground to the market, that cod will be brought to Billingsgate from distant points in the North Sea, so far alive, that they will crimp—an undoubted proof of sustained vitality.

Crustacea abound in every cove, and on every sloping beach of our island. They are brought to market while still living, and there are boiling-houses near the market, where, at a trifling cost, they can be made ready for consumption. Shrimps are cooked at the places where they are caught, as otherwise they would be difficult of carriage.

The smaller fry of fish, such as gurnet, or pipers, small whitings, shad, dabs, and others, when they find their way to market at all, are sold at a low price, in parcels, under the title of "offal." The fishermen very often return such small catches into the sea, or retain them only as bait for larger fish. The double hooks used in catching mackerel will be baited with pieces of cod fish, and cod are caught with a bait of clams, squids, or capelins, or even a portion of the codfish itself. Whelks, too, are often used as bait for deep-sea fishing, and are sold at Grimsby for that purpose at 4s. and 5s. a sack.

So much for the fish. A few words upon the fishmongers. According to the census of 1861, there were 3,258 male and 209 female fishmongers in London and its suburbs. Of these one is entered as five years old, and more than 400 as under fifteen. These juvenile tradesmen were certainly not shopkeepers. It is curious to trace the fluctuations in the numbers of fishmongers, or vendors, according to the nature of the district in which they are found. They invariably are most numerous in poor neighbourhoods, which fact at once calls up recollections of certain flat trays on wheels, or mere wicker baskets, or barrels, planted in the roadway, close to the kerb, in certain crowded districts, and the sometimes not unsavoury, at others undeniably rancid, odour which fills the air of such localities. Bethnal Green had 184 fishmongers, so called, which is more than three times as many as Westminster, which had only 60. All the eastern districts stand out pre-eminent as dealers in fish, and are only matched in the north by St. Pancras and Marylebone. Whitechapel takes a place next to Bethnal Green; and, strange to say, Hampstead and Rotherhithe are on a par within one, the former claiming 14, the latter 15 fishmongers, these being the lowest numbers on the list. The City of London figures only for 118, including, of course, Billingsgate; but, then, it must be remembered that Billingsgate is not a residence. As a market, it has many tenants. They are divided into "salesmen," "bummarees," and "casuals." The salesmen form the most important class, and occupy some 69 stands. The bummarees are a sort of middlemen, who buy in large quantities to retail their purchase to the fishmonger. There is no monopoly or interference with fair trade in this arrangement. The fishmonger is at perfect liberty to buy of the salesman, if it suits his purpose; but, in very many cases, it is more convenient for him to buy exactly the quantity and quality of fish he wants from the bummaree. There are some 63 bummaree stands or forms. The casuals are humble salesmen, who have no real standing in the market, but who "pitch" themselves wherever they can find room. Sometimes they are allowed to take possession of an unoccupied stand for a small consideration. It is from this class that the established salesmen or bummarees are recruited, and those who desire it have their names entered on the books for stands as they become vacant, taking their place by rotation.

The salesmen's stands are let by the week, and vary in rent according to position. The best are charged at the rate of £1, others less favourably situated at 15s., and others, again, at 10s. and 12s. per week. The bummarees pay from 5s. to 7s. a week for their "forms," and the casuals 6d. a morning. All these occupiers alike are tenants at will, but are never removed from their positions so long as they faithfully observe the regulations of the market. The widow of a salesman is always allowed to retain her husband's stand if she wishes to carry on the business.

From masters we come to men, and these may be divided into three classes—the salesmen's assistants, the "shorers," and the "bobbers."

The first are weekly servants, and are but poorly paid. Many receive no more than 15s. a week, the majority not more than £1, and only some few, who have a post of more responsibility than their fellows, and who, perhaps, are called upon to exercise control over others as foremen, earn £1 5s. weekly. Their hours of work are early if not very prolonged, and their labours not light, nor always agreeable.

The shorers are labourers employed by the salesmen to unload the steamers and cutters of their cargoes, as well as the vans on the land side. They usually work under a head-shorer, and their labour is reckoned at from 4d. to 6d. per barrel or package, for the safety of which the head-shorer is responsible from the vessel or van to the stand. The head-shorer's proportion of pay is 2d. or 4d. a parcel, according to size and weight. The shorer, although his labour is of the hardest, is not ill remunerated.

The bobber is a sort of light infantry among labourers. He is generally his own master, willing and ready to serve whoever needs him. He hangs about the auction-stands, ready on an instant to exhibit the fish to be sold by hoisting it on his head, and so acquiring the right to carry it out of the market. The bobber is paid by the purchaser at the rate of 1d. a load, if the distance is only into Thames Street, and not beyond the bridge (London Bridge) on the one hand, or Tower Hill on the other; but if he has to ascend any of the steep streets which face the market, or to pass the boundaries of bridge or Tower, west and east of him, his pay is 1½d. a load. If the bobber is nimble and fortunate, he may earn a fair wage for a labourer; but his receipts are very uncertain, and may be reckoned by shillings or pence per day, as the case may be. Sometimes there are several bobbers engaged at one stand, in which case there is a head-bobber, who is responsible to the salesman for the safe delivery of the goods. The head-bobber receives all the bobbing-money, and pays the subordinate bobbers each his share at the end of the morning's work.

Cheap fish is undoubtedly a great blessing to the poor, and it is evident, from the statistical returns quoted, that they avail themselves largely of any such advantages offered to them. The quantity of fish—chiefly plaice—fried in dripping and batter, and sold in slices at a penny, and even a halfpenny each, is beyond calculation.

The total number of visitors to Kew Gardens last year was 55,934 in excess of that of 1864. There were 260,040 visitors on Sundays, and 269,201 on week days. The smallest week-day attendance was on October 26, when there were only nine visitors. On the previous Sunday there were only 17. On the 5th of June—a week day—as many as 19,849 visited the gardens in one day; and on a Sunday in July there were 16,842.

SWEET REST.

'Tis sweet to rest when work is done,
And daylight shortens in;
To watch the calm receding sun,
And feel a glow within.

'Tis sweet to sit and loose the tide
Of healthful thought amain;
To spread the sail, and gaily ride
In fancy's light domain.

To muse, and mark, and murmur none,
To tinge with golden dye;
The world's rebuffs to smile upon,
Or soften to the eye.

And many, many things to see
On dreamland's mystic pile;
To picture man, like liberty,
Serene from worldly wile.

Ah me! but dreams are like the sky,
Now seeming fair, now black;
And rest is short, too soon to fly,
In bygone's endless track.

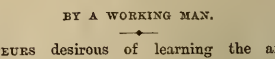
Yet still, 'tis good to rest and smile,
And work your path along;
And now and then an hour beguile
With dreamers and their song.

Charles Wilkinson.

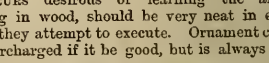
Practical Hints in Carving Wood.

BY A WORKING MAN.

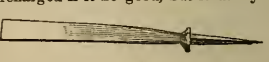
Amateurs desirous of learning the art of carving in wood, should be very neat in everything they attempt to execute. Ornament cannot be overcharged if it be good, but is always overcharged when it is bad. It would be well for the young beginner if he practised ornamental drawing a little, as drawing facilitates the manipulation of the art of carving. The tools required by the wood-carver are numerous, but the amateur does not require all of them. He will commence by procuring a piece of deal about 5 ft. long by 10 in. wide, and 2 in. thick. Four legs should be put into it, and it must be made to stand firm. Then he will provide himself with a screw holdfast and a small mallet, as the practice of striking the



1. FIRMER.

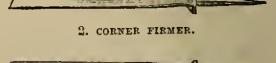


2. CORNER FIRMER.



3. STRAIGHT GOUGE.

4. PARTING TOOL.

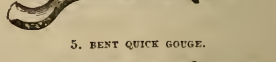


5. BENT QUICK GOUGE.

6. BENT PARTING TOOL.

7. RIGHT CORNER TOOL.

8. LEFT CORNER TOOL.



9. GOUGE.

10. BENT CHISEL.

handle of the gouging implement with the palm of the hand is attended with danger.

The tools absolutely necessary for the beginner are fourteen in number—viz., one one-inch firmer, one three-quarter corner firmer, one quarter firmer, one half-inch flat gouge, one quarter-inch flat gouge, one small parting-tool, two quick gouges

(large and small), one small veining-tool, two fluting-tools (large and small), one bent parting-tool, and four bent tools of different sizes; also, a soft Turkey oilstone for sharpening the outside edges of the tools, and a few slips of the same, round on the edges, for sharpening the inside edges. These tools may be procured at the principal tool shops, such as Fenn's, Buck's, and others, and are inexpensive, costing from 6d. to 1s. each, the handles 2d. each.

While giving particulars on the sharpening of tools used in the art of wood-carving, we shall offer some advice. Let it be well understood by the amateur that in this branch of the art he cannot be too particular. He should have the Turkey stone slips made to fit as near as possible to the inside edges of the tools, and the gouges should be well rubbed from the inside; and it is well to rub them, first of all, with water-stone. It is also advisable to have a piece of buff strop, on which may be rubbed a little emery and oil, made into paste; for, after sharpening the tools with the Turkey oilstone, there remains what is called a *wire edge*, and by rubbing the tools on the strop it comes off.

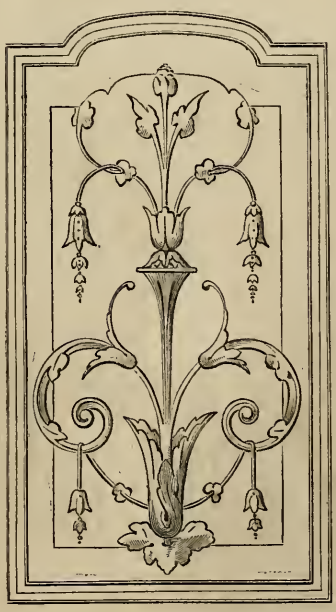
We now return to the hints which should be attended to by the amateur. He should attempt the simplest style of ornamental carving at first, and be very decisive in the cuts he makes with the gouges, for false cuts often spoil the effect of the ornament he is working. Lady amateurs often excel gentlemen in the art. In fact, we have seen some very fine specimens of carving in wood executed by ladies, for whom the art is admirably suited, as it affords an interesting indoor occupation, as well as great relief from other and monotonous employments. It would be well for the amateur carver not to use glass-paper, for it very often spoils the appearance of the work; and we should also advise the learner not, under any consideration, to polish his work, but simply to use a soft brush (an office nail-brush, for instance, answers admirably), rubbing a little beeswax well over the hairs of the brush, and then to gently rub the carving with it, and it will be found to produce the desired glossy appearance. Those who desire making a pastime of wood-carving would do well to take a lesson from a professional carver, as it would give them a great insight into the manipulation. There are many who would give a lesson for a small remuneration; but for those who would be self-taught we subjoin the following rules, which will be found useful:—

In the first place, after procuring a piece of sycamore, plane it all over if it be intended for a panel or watch-stand. Those who have small work-boxes can make little pieces of carving for them in the shape of a round or square panel of oak-leaves and acorns, and screw the carvings on to the top from beneath.

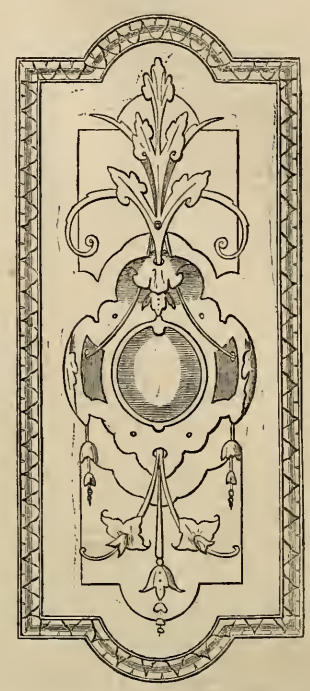
For the benefit of our amateur readers, we give three sketches of very handsome patterns of panels, in the Renaissance style, which they can produce in wood. These panels may be made larger by the carver in working them; and, if properly executed, they will look very handsome, and are things well suited for the amateur. Should the beginner find he cannot succeed at the first attempt, he must make another trial, till he succeeds. These panels, when well-executed, would form good subjects for a Working Man's Exhibition.

The amateur, in commencing these designs, should first sketch them out on the piece of sycamore, either by drawing or tracing, then commence operations by using No. 1 parting-tool. After cutting all round the outline of the ornament, proceed by cutting straight down the edges with No. 2 three-quarter flat gouge, and excavating in turns by No. 3 quarter-inch bent flat chisel. Care must be taken to fit the ornament, such as the leaves and the scrolls, with the right-sized gouges. Having done the edges of the ornament and the groundwork, commence by touching lightly over the leaves, curled tendrils, and scrolls, and the amateur will be careful not to cut against the grain of the wood; and cut it as clean as possible, taking his time over it. Having cut it neat and clean, proceed to veining the leaves with the veining-tool. Sink the ornament about half an inch, and let the piece of wood be about an inch thick.

In conclusion, we shall offer a few remarks on the progress of wood-carving during the past ten years. Now that the art is so extensively practised in this country, we have amongst us at present wood-carvers who can rival our Continental neighbours. Some of the East and West End firms of the metropolis have workmen in their employ who are second to none. Some fourteen or fifteen years ago, a Scotchman, of the name of Duncan Keith, a wood-carver of no mean ability, came to London, and it is to him that the progress of wood-carving at the East End of



London is indebted for its present advanced state; and also to the indefatigable zeal of Mr. Turner, of Islington, a manufacturer of chairs and couches. The question has been asked, "Who gets credit for the advancement of the art? Is it the carver who executes the work, or the manufacturer who employs him?" Neither; but the large commercial houses, which get all the honour and credit due to the working man. For let it be understood that the manufacturers do not reap the benefits they ought: while the manufac-



turer gets about twenty per cent. on the work, the large commercial houses get nearly cent. per cent. Good carving, like painting, requires time and patience. Those who are acquainted with the art of painting must know that it cannot be well executed if hurried; so it is with the art of wood-carving. And so it often happens, unfortunately, that many a piece of beautiful carving, that might well be considered a work of art, is positively spoiled through want of proper time to execute it. And why so? Because, as is well known, those large establishments require such an enormous profit that manufacturers cannot supply the article as perfect as it ought to be. In France, wood-carvers are allowed their own time over their work; but in England a carver has to hurry his work, for the reasons explained above, and hence it is that the carving coming from Paris is very often superior to ours.

Grievances of Ploughmen.

BY THE REV. DR. BEGG.

IMPERFECT ARRANGEMENTS IN REGARD TO COTTAGES.

There is a wailing for the dirt, and vice, and misery which must prevail in houses where seven or eight persons of both sexes and all ages are penned up together, for the night, in the one rickety, foul, vermin-haunted bedroom. The picture of agricultural life unrolls itself before us, as it is painted by those who know it best. We see the dull, clouded mind, the bovine gaze, the brutality and recklessness, the simple audacity, and the confessed hatred of his betters, which mark the English peasant, unless some happy fortune has saved him from the general lot, and persuaded him that there is something besides beer that the poor man may have and may relish.—*Saturday Review.*

We have already called attention to one important defect in many rural cottages—viz., that they contain only one apartment, and are otherwise often ill fitted to promote the comfort and purity of domestic life. We proceed to remark, in connection with imperfect arrangements in regard to cottages, *that there are sometimes by far too few of them.* This applies both to the districts which contain good and bad cottages. Sometimes the discomfort of foul and rickety dwellings is augmented by the consideration that it requires

a struggle to get any house at all; whilst, when better and more substantial, nay, even sometimes highly ornamental cottages are erected, they are only erected occasionally, in small numbers, and in prominent localities, for show rather than for utility. There is not in many cases, either on the farms or in the immediate neighbourhood, anything like sufficient accommodation for the people who must necessarily be employed, and who must, therefore, seek it at a distance from their work. What the precise proportion of cottages is which should be provided in connection with a well-conditioned system of agriculture, has not been positively fixed, but, considering ploughmen, farm labourers, and a convenient number of smiths and carpenters, it has been calculated by Mr. Hope and Mr. Skirving, two large farmers in East Lothian, and very competent judges, that there should not be less than two good cottages in connection with every plough employed upon the land. It will be found that in very many districts nothing like this proportion has been provided; nay, it has sometimes been remarked that, in the course of modern alterations—improperly called improvements—where one cottage has been erected two have been destroyed. The result of a careful examination, therefore, will often be found to prove that our rural cottage system is, at least, as defective in quantity as it is in quality; whilst, in some districts, as we shall afterwards have occasion to show, there are few or no cottages at all.

Here, then, is another great source of evil and discomfort; and it is an important question to what cause or causes we are to trace a state of things so disadvantageous to landlord, tenant, farm labourer, and the general community. The causes are, no doubt, various. The present system of improved farming has grown up almost insensibly, and in the transition the interests of the ploughmen and labourers have, unfortunately, not occupied a very prominent place. The farmer has naturally taken care, in most instances, to secure a very good house for himself. We cannot blame him for this. Stables and cow-houses have also been built with due regard to sanitary arrangements. The disease and death of cattle is a serious and costly affair, and must, if possible, be prevented. To secure these objects, a considerable outlay is indispensable, and some of our landlords have no superfluous funds to spare. The discomfort, and even death, of the working man have, rather unfortunately, no pecuniary aspect; and although our landlords and farmers are as humane as other people, it is pretty certain that if men had to be bought, or if every disease resulting from an unwholesome cottage could be made, as in the case of the cattle, to assume the form of a pecuniary demand, a much deeper interest would immediately be felt in the sanitary and social arrangements connected with the cottages of rural labourers. In the absence of this element, the matter has generally been postponed, slightly considered, and often totally neglected. Besides, there was, at one time, a great delusion abroad in connection with the large and improved farm system. It was supposed that, in consequence of the growth of mechanical ingenuity and otherwise, comparatively few labourers would soon be required, and therefore that very few cottages would be necessary. Like the analogous idea which prevailed in connection with the progress of railways—viz., that horses would soon be totally superseded, and got for half nothing, so it was supposed to be unnecessary to build many cottages, as there would soon be very few labourers to occupy them. Both these ideas have been found to be purely fallacious, and many are now ready to maintain, and with great force, that the highest farming requires the employment of the greatest number of hands.

Other causes have undoubtedly had a much greater influence, however, in restricting the number of cottages. The non-residence of landlords, whose agents or factors often give the farms to the men who offer most rent, and seek least outlay in cottages, or in anything else, is one great cause. The expensive plans of cottages devised by architects, who are paid a per-centage on the amount spent (like the lawyers, who are sometimes paid by the page), and who are thus induced to frame expensive designs, is another cause. Landlords who build a few cottages in this way, get frightened at the cost, and abandon the task. The law of entail, which makes a landlord a mere life-renter, whose interest it is, as he thinks, to get as much out of the estate, and to spend as little as possible, has, undoubtedly, been very prejudicial. The rage for game preserving, which has made some of the landlords dream that a dog and a gun are found concealed in every cottage, has tended to diminish the numbers of them, and even to lead to their wholesale extirpation. Previous to the Union Chargeability Act, it was proved also that the poor law operated in precisely the same way, by inducing the landlords to refuse to erect, and to pull down, cottages, lest their inmates should become ultimately burdens upon the parish. The old chiefs reckoned themselves rich in proportion to the number of their hardy retainers, upon whom they looked with pride; but by the contradictory and pernicious operation of some of our laws, the wish to be "alone in the earth" is mightily strengthened, and the social state of the country most seriously injured.

What is the practical effect of this great restriction in the number of cottages to which we have referred? Not only the fearful over-crowding so often spoken of, resulting in immorality, disease, and death, but a crowd of other evils not yet fully developed. So long as farming goes on, labour and labourers must be had. For a time the labourer may walk long distances in the morning and evening, although it is a most cruel addition to his toil. We have known them walk six miles each way, or twelve miles daily, in addition to all their hard work. By investigation, we find that to travel twelve miles a day is itself the whole work of some omnibus horses—and why should men be so oppressed? But it is obvious that this state of things cannot continue, and the "gang system," which is spreading like a moral pestilence in some parts of England, seems one of the offshoots of this deficiency of cottages. A man hires a large number of workers, and marches them from farm to farm to do farm-work, like a squad of strolling players. They work during the day, and dispose of themselves as they best may during the night, without much regard to comfort or decorum. Let this system only spread a little further, and rural society will be dissolved. Unless proprietors, who are fighting against nature in restricting the number of cottages, are lost to all forethought of consequences, they will see what a tremendous retribution they are laying up in store for themselves. The system in question bears a perpetual resemblance to the harvest-barns of Caithness, which occur only once a year, and from the same cause—the want of other accommodation. The whole of the reapers are indiscriminately turned into these barns at night, and a friend of mine who visited one of these night encampments, says that a more perfect chaos of brutality, blasphemy, and obscenity, it is not possible to imagine. It will be well if the attention of our men of influence is turned to this matter in time. We are happy to say that there are indications of decided improvement, and that on very many farms the arrangements are of the most admirable kind. Elihu Burritt, in his "Walk from London to John O'Groat's," lately published, tells us that he visited the farm of Mr. Samuel Jonas, situated chiefly in Essex, and containing about 3,000 acres—the annual expenditure being about £10,000. What he saw there may now be seen in many other parts of the kingdom; but the great matter is to get it made universal.

He says:—"There was one feature in this great farm-home which I regarded with much satisfaction. It was the housing of the labourers employed on the estate. This is done in blocks of well-built, well-ventilated, and very comfortable cottages, all within a stone's-throw of the noble old mansion occupied by Mr. Jonas. Thus no long and weary miles after the fatigue of the day, or before its labour begins, have to be walked over by his men in the cold and dark, as in many cases in which the agricultural labourer is obliged to trudge on foot from a distant village to his work, making a hard and sunless journey at both ends of the day."—Page 182.

There is one other defect in our cottage arrangements which we shall do little more than name, viz.:—

In many instances cottages *are not regarded as part of the regular appurtenances of a farm.* Rent is charged for them, as if they had no necessary connection with the farm; and it is alleged as a reason why more or better cottages are not built, that they do not pay. To our mind this is all a delusion, and proceeds upon a false principle. We never ask the farmer to pay a separate rent for his house. We never calculate a separate rent for the houses necessary for the cattle and horses required upon the farm. Our calculation is that the one rent paid for the land covers all, and the same principle should be applied to the cottages of such labourers as are necessary in the cultivation of it. Lord Palmerston, in an admirable speech some time ago, set forth this view very forcibly; and it is, we believe, the only sound one—the only one likely to secure an effectual remedy for the existing evils.

THE NIELLO PROCESS.

FROM THE ITALIAN OF BENVENUTO CELLINI.

Take one ounce of pure granulated silver, two ounces of pure copper, and three ounces of refined lead; put the silver and copper into a large crucible, and place it on a clear fire, and raise the heat with the bellows. When the metals are melted and mixed by stirring with a stick of charcoal, add the lead; then quickly withdraw the crucible from the fire, and stir the metals together until they be thoroughly mixed; then take a stone bottle of sufficient capacity, with a neck as large as a fore-finger, and half fill it with sulphur, into which pour the melted metals; then stop the bottle with a piece of moist clay, holding the bottle in the hand, covered with a wet cloth. While the mixture is cooling it must be continually shaken; and when cold, the mixture is removed by breaking the bottle. It is now of a black colour, in consequence of the admixture of the sulphur. This is the *niello*, which will be found in the shape of small grains. This is again put into a crucible over a gentle charcoal fire, and, when melted, poured into a stone bottle, and shaken until cold. This operation is repeated two or three times, and the bottle into which it is poured broken each time. Only the finest and equal grains are selected. Take the plate which is to be engraved, and, as the beauty of the niello depends upon its being uniform and free from blisters, it is necessary to boil the plate in water containing wood ashes, or pearl ashes, or soda, for a quarter of an hour, and leave it for another quarter in the ley; it is then put into a tray filled with clean cold water, and rubbed all over with a stiff brush until all dirt is removed. It is then fixed upon an iron tool, something like a gridiron, of a size sufficient to hold the plate. The iron must be neither too thin nor too thick, so that it and the plate may be uniformly heated when the process of making the niello is going on; for if either the iron or the plate be unequally heated, the result of the operation will not be satisfactory.

The niello is broken upon an anvil or a stone slab into grains the size of millet seed, neither larger nor smaller, and put into a glazed pot, and well washed in cold water, to remove dust or other impurities, which, if present, would injure the work; then take a brass or copper spatula and spread the niello over the engraving to the thickness of a knife-blade, and sprinkle over it a little borax finely powdered, but not too much. Have a charcoal fire ready, then bring the plate gradually over it, and hold it there until the niello begins to melt; for if too strong a heat be applied at first, the work will become red, lose its good qualities, and turn soft, so that the niello, which consists mostly of lead, would destroy the engraving, whether on gold or silver, and the operator would lose his labour if he did not seize on the right moment.

While the plate is over the fire, have an iron wire, thinned at the end, and heat it in the fire, and as soon as the niello on the plate begins to melt, pass the iron wire over the engraving; then, as both are warm, the niello will become like melted wax, and thus unite and spread over the plate with facility.

When the plate has cooled, take a fine file and remove some of the niello, not so as to expose the metal plate, but only sufficient to discover the engraving. The plate is then put over the cinders of the fire, and when it has become so warm that the hand cannot endure the heat, take a steel burnisher and a little oil, then burnish as much as may be required. The object of this burnishing is to fill up any holes or inequalities in the work. By practice and patience all defects may be repaired; but to complete the work, a skilful workman will take up the scraper and finish by exposing the engraving—that is to say, the white portion of the plate, where the metal is exposed—then polish it with charcoal-dust and tripoli, immersing the plate in water at intervals, until the work becomes smooth and brilliant.

Lord St. Leonards' Arbitration Bill.—An adjourned meeting of trades' delegates, for the consideration of the Arbitration Bill introduced into Parliament by Lord St. Leonards, has been held. After a long discussion, in which a general desire was expressed that further explanations should be obtained from Lord St. Leonards before the trades could come to a decision on so important a subject, it was ultimately resolved that a deputation should wait upon his lordship, and report the result to an adjourned meeting on Thursday, the 8th of March.

Men who have Risen from the Ranks.

V.—HENRY KIRKE WHITE.

WE pass from potters to poets—albeit great potters like Palissy are poets in their way—because the life of a poet and scholar, who made his way from a very low estate to a position of distinction, if not of eminence, is a matter of instruction, both in the way of example and, in Kirke White's case, of painful warning also.

Henry Kirke White was born at Nottingham, on the 21st of August, 1785. He was the son of a butcher. Young Henry White was intended for his father's business. In his leisure hours and one day every week, he carried a butcher's basket about the town. He, no doubt, owed to his mother, who was a woman of some education, and who opened a school in Nottingham, his initiation in the pursuit of knowledge. At seven years of age, he commenced prose composition; at thirteen, he wrote a poem. This precocity was a bad sign, as far as his health was concerned; but in those days the laws of Nature were little understood. At the age of fourteen, he was placed at a stocking-loom—indeed, put apprentice to a stocking-weaver. But his thirst for knowledge rendered this trade distasteful to him as the business of his life. There were no People's Colleges then in Nottingham, as now, nor Working Men's College, such as happily exists in London, or young White might have followed his trade, acquired knowledge, distinction, and a degree, and possibly preserved his health. His mother found means to place her son in the office of Messrs. Coldham and Enfield, the then town-clerks of Nottingham. By this time young Henry had acquired a knowledge of Latin, with very little instruction, and had begun the study of Greek. To these languages he afterwards added Italian, Spanish, and Portuguese; chemistry, astronomy, and electricity also engaged his attention; drawing was another of his pursuits, and he played very pleasantly by ear on the pianoforte. He showed a capacity for practical mechanics. At the same time, he occupied himself in the study of law with such industry that it was deemed wonderful—so busied were his days with it—that he could find time for anything else. This was enough to kill any young man, and it killed Henry Kirke White eventually.

A student whose mind is subjected to early discipline, will make immense progress without harm—a progress that would undermine the health of any one who attempted the same circle of learning in a desultory way: but the application of the nights to learning, when the days are devoted to exhausting office duties, always tells on the physical constitution; and the probability is that young White had no sufficiently nutritious diet adapted to sustain such immense and protracted physical exertion and waste of nervous power. Sir William Follet, with scarcely less avidity for learning than White displayed, coupled with disregard of the proper physical conditions of close study—namely, by sitting in damp chambers—undermined his constitution, and broke down in the dawn of his great fame, and all his fine powers perished prematurely. Charles Buller, whose recreation, Macaulay tells us, was reading works on the statistics of China, or the political economy of Siam, or similar brain-drying treatises, died when his fine Parliamentary genius had drawn the highest attention to him.

In his fifteenth year, Kirke White was seeking distinction as a speaker in a literary society in Nottingham—his other pursuits not satisfying his voracity of acquisition; and to this oratorical consumption of his time, wholesome in itself in moderation, he added the occupation of correspondent to various periodical publications. The *Monthly Preceptor*, the *Monthly Magazine*, the *Monthly Visitor*, the *Monthly Mirror*, received contributions from his pen—we ought, in truth, to say contributions of parts of his life, which he was giving away with a lavish hand. He was scarcely seventeen years old when Mr. Capel Lofft appeared upon the stage, and induced him to prepare a volume of poems for the press, which, amid other studies, he wrote. The volume was severely treated by the reviewers. How was it possible that such an intellectual slave could produce anything fresh or original? He worked like a locomotive that ran incessantly and never stopped to take water. His poetry must have been the attenuated vapour of the brain.

Before this volume was published, young White considered himself, or was considered by others, to have a tendency to infidelity. It is quite clear, however, that a great change was wrought in White's opinions and his whole intellectual being, by his conversion from indifference to religion, to a deep and lasting conviction of the truth of Christianity. The passionate strength of his religious feelings is no mean proof that he had strong natural powers; and had his life happily been spared, and he had ever enjoyed repose and health, he would have made no mean mark in the literature of his country. Disease gave, as it always does, a morbid tinge to many of his poems; but his felicity of versification, and a certain earnestness of feeling and force of diction, were remarkable. His well-known "Star of Bethlehem" is an example of the sweetness, fervour, and grace with which he would have enriched the lyrics of religion.

The publication of White's volume of poems procured him the notice and friendship of Southey, to whom he was principally indebted for the interest felt about him. The Duchess of Devonshire, to whom his volume was dedicated, was expected, after the custom of dedicators of the period, to do something for the young poet, but did not. Friends, however, came to his aid, and by the assistance of Mr. Simeon, of King's College, a sizarship at St. John's, Cambridge, was procured for him, and he commenced his education for the church. His legal employers, who probably had no great confidence in making a steady lawyer of a young poet, kindly consented to the arrangement. A scholarship becoming vacant, he was advised to compete for it. His health was then sinking. He had the sense to decline examination on account of his failing strength; but he was prevailed upon to change his resolution. He won the scholarship. He was pronounced the first man of his year. But Death put his inexorable mark upon him, regardless of his college distinction. Instead of seeking rest, he came up to London, and added its excitement to his disease. The next year he was again pronounced first at the Cambridge examination. The college now offered him a private tutorship in mathematics during the long vacation—as though mathematics were a cure for consumption. In these wiser days, such a student would be dispatched to a sunny clime, to pass his vacation in rest and recreation. He paid another perilous visit to London, and returned to Cambridge to die. He perished on the 19th of October, 1806, in his twenty-second year. Such a death would now be regarded as an intellectual suicide. The laws of physical health have to be observed, as well as moral and religious laws. Ignorance of physical law was no demerit in White, for it was the defect of the time in which he lived. He, however, knew very well how his end came. "Were I," said he, "to paint Fame crowning an undergraduate, I would put a death's head under his mask."

Southey generously stood the friend of his memory, as he had of his life, and edited his "Remains," and gave him honourable repute, though praise could not soothe the "dull, cold ear of death." A young American gentleman, Mr. Francis Boot, of Boston, erected a medallion, by Chantrey, to the poet's memory, in All Saints' Church, Cambridge. But the noblest and most enduring of all tributes to his memory came from Lord Byron, who probably had sympathy for him, because he was, in a sense, his neighbour, being born, as it were, in the neighbourhood of Newstead Abbey. White's early volume of poetry was abused by the critics, like Byron's "Hours of Idleness," and certainly had as much poetic talent as the noble lord's first efforts in verse. Byron considered that, like himself, White would have vindicated his genius had he lived. Kirke White had undoubted force of character, to have raised himself by sheer industry and study from the butcher's basket to University distinction; and Byron, though differing from him in opinion, wrote in his "English Bards and Scotch Reviewers" this striking and generous estimate of Henry Kirke White's career:—

"Unhappy White! while life was in its spring,
And thy young muse just waved her joyous wing,
The spoiler swept that soaring lyre away,
Which else had sounded an immortal lay.
Oh! what a noble heart was here undone,
When Science' self destroy'd her favourite son!
Yes, she too much indulged thy fond pursuit,
She sow'd the seeds, but death has reap'd the fruit.
'Twas thine own genius gave the final blow,
And help'd to plant the wound that laid thee low:
So the struck eagle, stretch'd upon the plain,
No more through rolling clouds to soar again,
View'd his own feather on the fatal dart,
And wing'd the shaft that quiver'd in his heart;
Keen were his pangs, but keener far to feel,
He nursed the pinion which impell'd the steel;
While the same plumage that had warm'd his nest
Drank the last life-drop of his bleeding breast."

THE WAY STEEL IS MADE IN JERSEY CITY.

AMONG our readers those who live in this city know very well that Jersey City is a suburb of New York, lying on the west bank of the Hudson, or North River, which bounds this city on the west. Among the numerous manufactories of Jersey City are the steel works of James R. Thompson and Co. They are situated in Warren Street, and contain thirty-two furnaces for melting steel, with a powerful steam-engine, tilt-hammers, rolls, shears, and all the necessary appliances for bringing the metal into the proper form for market. At these works the steel is cemented and melted at the same heat, the whole operation occupying only two and a half hours. Plumbago crucibles, made by one of the owners of the works (Dr. Gautier), are filled with a mixture of wrought iron, steel, and charcoal, covered with a loose lid, and set in furnaces, where they are subject to an intense heat till the iron is converted into steel, and the steel is melted, when the metal is run into ingots in cast-iron moulds. Each crucible or pot holds about 60 lb. of metal. It is filled with punchings of boiler-plate and other kinds of scrap, with five to fifteen per cent. of steel, and a small quantity of pulverised charcoal, the proportion of steel and charcoal varying with the quantity of metal which it is desired to produce. The furnace looks like a simple cubical excavation dug in the ground, its dimensions being about 2½ ft. in all directions. It is, however, a carefully built structure, with a grate and air passage at the bottom, with sides of fire-brick, and with a flue to lead off the smoke. The furnaces are ranged in two rows, one on each side of the steam-boiler, and the flues lead under the boiler, so that the steam is made by waste heat from the furnaces. Each crucible holds four pots, and for melting the steel these are buried completely in anthracite coal. The grate is first covered with coal to the depth of about 8 in., the pots are then set in, a wheelbarrow-load of coal is shovelled into the furnace, so as to surround and cover the pots, the top of the furnace is closed with a slab of fire-brick, and a powerful blast of air is driven through the fuel for two and a half hours, when the iron is found to be converted into steel, the metal is melted, and the whole mass is mingled homogeneously together. The furnace is now uncovered, and a workman, having his hands and legs protected from the heat by bandages of wet canvas, seizes a pot with a long pair of tongs fitted to grasp it, and lifting it out, carries it back a few steps to the mould. Here another workman grasps the pot sideways with a pair of differently-shaped tongs, and pours its glowing contents into the mould. The moulds are set on end, and the ingots are some 4 in. in width, by 2½ in. in thickness, and 15 in. in length, though the form varies somewhat with that of the finished bar or rod for which they are designed. After the ingots are cast they are allowed to cool, and then, for hammering and rolling, they are re-heated in a reverberatory furnace. This cooling and heating is found necessary to give the best internal structure to the steel. It seems, at first, a contradiction that heat should take carbon out of iron and combine it with oxygen, and then that heat should take carbon from oxygen and restore it to the iron. To make wrought iron from cast iron the metal is melted and exposed to a current of air, when the carbon leaves the iron and combines with the oxygen of the atmosphere; then, to return carbon to wrought iron, so as to convert it to steel, the metal is packed in a pot with charcoal and heated. Though we are not aware that any writer on the subject takes this view, it seems to us impossible to doubt that in making steel the carbon combines with oxygen before it combines with the iron. It is a maxim that solids exert no chemical action upon each other: either the iron or the carbon must be in either the liquid or the gaseous state before they can enter into the combination. Though the metal in these pots is melted, the fusion must take place after the iron is converted into steel. If free carbon can be either fused or volatilised it must be at a temperature higher than that of these steel pots, while it would combine with the oxygen present in the interstices so soon as the temperature had risen to that of red heat. This combination would produce either carbonic oxide or carbonic acid, depending upon the proportion of air and charcoal in the pot—in the actual conditions, probably nearly always carbonic oxide. This would instantly take the gaseous form, and would be diffused through all portions of the vessel, coming in contact with all parts of the metal surface. We can conceive of no way in which iron, in these circumstances, can obtain the carbon to change it into steel, except by the decomposition of carbonic oxide.—*Scientific American.*

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MARCH 3, 1866.

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*** *In our next Number will be announced a Series of*

MONEY PRIZES.

in connection with this Journal, to be competed for by Working Men.

ONE OF THE LAUNDRIES IN THE PEABODY BUILDINGS.

Workmen's Homes dependent on Workmen's Trains.

It is education to live in a good house. A man may be bad in a good house; but he who is bad in a good house will be worse in a bad one. A few rooms and a generally dismal abode affect the manners and the mind. How can a family be good-tempered that is always falling over one another? Sir John M'Neil said, wisely, at the last meeting of the Social Science Association, at Edinburgh, that houses containing three rooms were houses of an "immoral construction." This was the first time the right phrase had been used. It was philosophy in an epithet. No one had before marked by an expressive term how much modes of living have to do with morals. In Scotland, as in England, there are an enormous number of houses, so small and so crowded, that young and old of both sexes have to live and sleep in the same room. There cannot be health under such circumstances. But this is not the worst evil—there can be no delicacy, no refinement, no purity of feeling under this state of things. Decency of thought and act is impossible. The very instinct of decency is destroyed. Nor does the calamity of manners end here. Irritability is produced, not only by bad air, which affects the nerves, but by ceaseless contact of persons and tongues, which engenders ill-will, hatred, quarrels without end, offences which are never forgotten and never forgiven. Domestic estrangements grow up amongst those most nearly allied by blood, and who should be attached by unchanging affection. People who seldom meet seldom quarrel. The glad feelings of sympathy and society are not exhausted in a short time. The middle and upper classes, who are enabled to live in large houses, enjoy far more family affection than the poor; not because they have more loving natures than the poorer classes, but because they have separate rooms in which they can live alone so long as they prefer it, and can come down to the breakfast-room or dining-room, or parlour, when refreshment or recreation is required, and retire when it suits their taste or humour. But in small houses, where all the members of a family are daily and hourly hustling each other; where every plaything of the children and every piece of property of the adults is accessible to all; where dirt, din, and discomfort constantly reign; where escape is out of the question and privacy impossible; where there is no place to retire to, except into the street—how can kind feelings, respectful manners, and the fine charm of deference, which lies at the bottom of all true politeness, exist or grow under such conditions of life? As the Earl of Shaftesbury, in a great, a wise, and valuable speech, delivered some four years ago, at Liverpool, seemed to admit, morality has its material conditions, which must precede those of a higher kind.

The plain, and now well-known and widely-recognised necessities of house-life, point to a new order of habitations and conditions of living in our towns and cities. An earnest public writer, one of the Clinton family, a cousin of the late Duke of Newcastle, has long endeavoured to meet this evil by the institution of Associated Homes. Mr. Hawkes Smith, of Birmingham, the father of the eminent Parliamentary barrister, Mr. Toulmin Smith, was the earliest English practical advocate of the great domestic change happily now inevitable. Some additions, not yet suggested by Mr. Peabody, might be made to those merciful erections which his wealth is providing, which would immensely improve their uses. Owing to cost of space, all the rooms in our model lodging-houses are few and small—we speak of those appropriated to one family. The great family necessity is larger rooms, and more of them, in the dwelling-houses of the working class. This is impossible, with prevailing notions, in our crowded towns. The institution of common rooms, common refectories, large class-rooms for little ones, smoking-rooms, and news-rooms, in connection with working-men's block-houses, are quite beyond any benevolent millionaire or public company in England to institute. In any of the existing blocks there might be, on the same acreage, twice the number of floors. We might, by the judicious use of iron, as Mr. W. Bridges Adams (the most fruitful in resources of all modern civil engineers) has shown, have houses ten stories and twelve stories high. It would do the young people good to run up the stairs, and Mater and Pater familias could be raised by hoists every three minutes. We showed, in an early number of this journal, what has been done at Guise, near St. Quentin's, in France. They do "manage these things"—as they do some others since Laurence Sterne's days—"better in France." There are dwellings for workmen, with five rooms and a kitchen, cupboards, closets, and conveniencies innumerable; balconies round the houses, nurseries a princess would be glad to rear her children in, billiards, newspapers, doctors, musicians, and education at hand. There association is studied as a fine-art—living is reduced to a science. In England we give twenty families four houses among them, six square feet of damp yard for a playground, a joint closet, and a party pump, a beer-shop at the corner of the entry, a poor-house and a gaol, just as incentives to ambition; and we call this taking care of the working classes. There are districts in every town of which this is no exaggeration. But M. Godin, of Guise, who has so wisely, and bountifully, and economically, and mercifully allowed all this, is a disciple of Fourier. He learned wisdom in that thoughtful and generous school. But these are names we never mention in England. The great thinker was a doctrinaire; and we do not like doctrinairism here.

We must get out of it how we can. We shall get out of it in time. Working men will have an opinion of their own one day. Who knows but they may be set thinking to some purpose? One publication or another will effect a change in due course. There is no reason why they should be the lower class in habits, in refinement, in delicacy, in education, in manners, or in comfort. If they knew their own power, and had the sense to act in concert, they would soon amend all this. At present, they must look to the railways for help. Mr. M'C. Torrens has made a serviceable, much-needed, and long-needed motion in the House of Commons this week, with a view to the provision of better dwellings for artisans and labourers. Then we have had the short and maiden speech by Thomas Hughes, M.P., in the House of Commons, against one of the proposed metropolitan railways, destined to cut fifteen acres off Hampstead Heath. It is a great thing to preserve the commons we have for the people. Instead of the railway cutting the Heath off, Mr. Hughes cut the railway off. It is the right thing to keep the railways off the commons; but the railways may do good service to the working class. If the new companies wish public opinion in their favour, let them at once provide to run carriages at low fares—comfortable carriages, not horse-boxes or cattle-pens—for working men. Not, as now, one carriage at six o'clock in the morning, but a carriage every time a train runs, from early morning till late at night. Houses are required in the suburbs, where space is cheaper, and where roomy, wholesome houses can be erected, and let at a cheap rental, with a railway free ticket

THE PEABODY BUILDINGS, SHOREDITCH.

for the occupier. Houses of a *moral* construction must be put up, and access to them must be easy, constant, cheap, and at all hours. Railways alone can make this possible—companies can make money by it. If they do it in London, it will have to be done elsewhere. It will, no doubt, alter the whole railway system of management throughout the country; but, as it will alter it for the better, the change cannot be made too soon. A great reformer, who lived before his time, and who did much good in his day, once proposed that all railway transit should be free. The Chancellor of the Exchequer has yet to be born who will think of this; but the finance minister who does so will fill his exchequer, and develop the resources of the country enormously. We have seen the abolition of turnpikes already. That piece of wisdom took the nation 800 years to learn. It is but an inevitable sequence of Free Trade. It rests on the same principle as that on which national free transit is founded. This will come one day. In the meantime, we ask for cheap fares for the working class. They cannot come too early. They are already long overdue.

The Management of the Peabody Buildings.

The English people were gratified to learn, some time ago, that an American gentleman, Mr. Peabody, had given the great sum of £150,000 for the purpose of erecting wholesome dwellings for the working classes. There was something honourable and truly American in the idea of thus thinking of the social condition of the democracy. Great as this gift was, Mr. Peabody has, within a few weeks, increased it by adding another £100,000 to it, making a quarter of a million of money devoted to promoting the household comforts of the poor and industrious residents of our large metropolitan districts. Quietly and unostentatiously this immense sum has been "gifted," as is expressively said in Scotland.

SUITE OF ROOMS.

The decision and merit of this bequest are much enhanced by being made in the lifetime of the donor. No ambiguously-worded will, left to be disputed in law courts after his death, with the chance of the donor's aims being explained away, and the certainty of a considerable portion of the bequest being dissipated in legal fees, mars his noble design. He gives absolutely; and while he lives the character of his bequest is fixed. Lord Stanley, and, if we remember rightly, Mr. Alderman Waterlow—himself a benefactor of the working class in a similar and lesser way—are members of the directory for the application of the Peabody Funds: and already there stands in Shoreditch the first erection of workmen's homes thus provided for.

Undoubtedly, Shoreditch is a well-chosen district, in which to commence realising the Peabody benefaction. Millions of money might be usefully employed before the working population will be wholesomely housed. The whole parish needs to be recast and rebuilt. There is scarcely a healthy street in it, and very few houses in which any human beings who understood the conditions of health would choose to live. "Necessity compels" might be written over most of the houses and alleys. Happily, it does not go hard with the majority to live there—they are pretty well used to it—but the sanitary and moral philosopher can see that physical and

ethical results of the state of things prevailing there, and is as anxious to see it amended as though the residents were all sensible of them too.

In walking over the district—by no means a refreshing excursion—in order to visit the first Peabody erection of Buildings, and to ascertain what ground there was, if any, for the recent letters of complaint which have appeared in these columns, I selected, in the widest and most open street in Shoreditch, the most respectable eating-house visible. Portions of roast fowl and fresh-looking rolls shone temptingly in the window. Looking at the interior, the proprietor appeared there resplendent in a massive gold watch-guard, or what was evidently supposed by the wearer to be such, with appendages of a startling description. Unwisely concluding, or rather hoping, that this external magnificence at least implied digestible chicken, an approach was made to the counter. A nearer inspection corrected this illusion, and a ham sandwich was ventured upon. Pickles were offered as an accompaniment and declined; but a less suspicious customer accepted them. The proprietor with the jewels found his jar low, and at once took down a large stone vessel, in which his treasure of pickled cabbage reposed; and straightway thrust his hand in and brought some up, and stuffed them into the smaller jar with his fingers. This operation, which he repeated several times, had the effect—vinegar being a detergent—of cleaning his hands without at all improving the colour of the vinegar, which, when he had done extracting cabbage, he poured into the smaller jar, and handed it to his customer for use. If this be an example of the "manners and customs" of the retail inhabitants in an open shop, in the most respectable part of Shoreditch, what may we not suppose to occur in the poorer shops of humbler quarters? It is impossible not to be impressed with the vigour of appetite of the out-door Shoreditchonians.

The Peabody Buildings stand in a newly-formed street near the Shoreditch Railway Station. As the street (Commercial Street) has width, and the neighbourhood is comparatively open, there was reason for choosing this spot. Unfortunately, right opposite is the Cambridge Music Hall; and from all the front windows of the Peabody Homes the inmates look down on what it can do no one good to see. The Peabody Buildings is a substantial brick erection, not without an air of stateliness, but without any distinguishing character as a whole. It would be pleasant and gratifying to think that some external form had been chosen for the buildings by which every succeeding erection could be recognised, and connected at sight with the noble donor's memory. No portico, or conspicuous office of inquiry, marks the place; no name or symbol appears to distinguish the place from surrounding buildings; inquiry is necessary to identify it. In the interior is an irregular and somewhat small courtyard, paved with flag-stones, dry and clean. This is the play-ground of the children. But there is nothing to play with—no benches, poles, or swinging-posts; mere flag-stone space, and nothing more. The yard, however, is a luxury in Shoreditch for poor children, and this must not be forgotten, But surely a little thought and a little cost would have added to the happiness, pastime, and health of the little ones. The designer of the Buildings must have forgotten that children have legs and arms. Having nothing to use but their lungs, they create a din that would make Babel blush.

All the landing-places on the staircases look into the yard. There is no other view than the backs of opposite houses. There is no gallery, back or front, on which wives could sit in summer in the sun, or husbands smoke an evening pipe, instead of going to the ale-house. A minor addition to the first cost would have created this means of enjoyment, and made the back houses superior to the front without galleries. At present, in all these block buildings, there is a perpetual struggle on the part of the back tenants to get into the front houses. Mr. H. Roberts, the architect who designed the Model Cottages for the late Prince Albert, has introduced the "glory of a gallery" in some of his erections. In this country, so distinguished for its home life, architects do less than in any country to gratify this sacred taste.

In this building the office of the superintendent is a cold, tame room, adorned with no bust or portrait of the generous founder of the place—nothing to keep alive in the minds of the residents the pleasant and grateful memory of him. A more prosaic, or more business-like commemoration of a public gift was never attempted than is seen here. Why was there not a cosy little Hall of Inquiry instituted—a pleasant-minded *concierge* established—which adds so much to the comfort and happiness of a French court of houses? We might borrow this little feature from our French neighbours; and if we put French families in the superintendent's house in these buildings it would be an immense advantage, until our own countrymen learn that spontaneous politeness of conduct which is already in their hearts, but so seldom gets into their manners.

But a truce to criticism where there is really so much to praise. Though there is nothing picturesque—not a feature of homely beauty, such as a mason, were he so minded, could charm the inmate with—in these buildings, the architect has done wonders for the health and comfort of the residents. The stairs are all wide, the corridors are all spacious, the walls are all whitewashed, the floors and stairs are all clean; the closets are numerous, private and convenient, light, and spacious; the lavatories are ample and accessible—closets and lavatories for men and women are separate and far apart. There is neither damp nor dirt, nor hole, nor smell. All is sweetness, space, and purity. The Peabody Buildings are a sanitary Paradise in Shoreditch. Not like the St. Pancras Model Lodgings, where the stairs are narrow, and one house seems to inhale the atmosphere of another: here the houses are well separated, and down the wide passages between them fresh air traverses. The corridors of Somerset House, in the Strand, are not so breezy, light, and fresh. Ungrudging praise is due to the directory who sanctioned or inspired this, and to the architect who contrived it.

The ventilation of every house and room is beyond all praise. Around the upper portion of every house, fresh air has constant admission, and sweeps the ceiling. The smallest rooms are fresher than the largest constructed in ordinary houses. Hardly any gentleman in London is so secure from disease in his home as are these Peabodians. In not one house in 10,000 in the metropolis is ventilation so perfectly, so simply, and so completely provided for. Some houses are said to be fire-proof: these houses are plague-proof.

The uppermost stories of all the flats are lofty, pleasant-looking, breezy drying-rooms. No hideous flapping of clothes on lines disfigures the yard. The washing-houses are all on this topmost floor. Each tenant has a copper, and a lead-lined washing trough. A mangle and wringing machine stands in each wash-house for use. The very wash-house, which is ever the damp, dismal, underground den in houses of the poor, sending its suds, steam, and discomfort up into everybody's face, is here at, the building-top, out of sight of the family, and cozy, light, and cheerful as a lady's kitchen, and healthier than many drawing-rooms. On this lofty flat are bath-rooms for men and for women, separate and remote from each other.

The fire-grates may be too large for some families; the ovens too small; the heat of the fire, owing to defective construction of the grate, may go too much up the chimney; the walls, being merely whitewashed bricks, may wear a poorhouse or gaol-like look. There being no supply of hot water for the baths, is almost tantamount to there being no baths at all. But these are small matters compared with the great advantage of sweet, cheap, healthy homes, with many cheerful and invaluable accommodations. Tenants owe duties to trustees, as well as trustees duties to tenants. Tenants should not complain too much. A brick wall, which a whitewash brush will always keep sweet and clean is far preferable to bug-breeding paper. An army of these red-jackets would produce more annoyance than a dozen military superintendents. A few fire-balls, bought by the tenant, would enable him to regulate his fire. Some of the tenants had actually pasted paper over every ventilating aperture in their rooms, on the ground that the air was cold. The tenants who made the most complaints were those who had shut out the air. Fresh air purifies the temper, as well as the house. One complaint is more valid, and it is one which might be remedied. There is no available school for the numerous children living in the Buildings. Mr. Peabody has foreseen this want when making his new donation. Is it too late to repair the deficiency at Shoreditch?

The noblemen and gentlemen who are the trustees of these Buildings are too high in station, and too fully occupied, to be able to give time to the detail management of this great series of erections. Mr. Peabody has done quite enough in giving his money. He should not be pestered with the complaints of tenants. Yet steps should be taken that complaints should have attention and remedy when they arise. Could there not be instituted an office of general inquiry for the public, who are interested in this noble Peabody Gift? Could not a complaint, respectfully worded, be lodged there by the tenants? Something of the kind would soon put an end to all complaints, afford justice, create confidence, inspire respect and gratitude, and render these places what Mr. Peabody desires them to be—communities where freedom, independence, neighbourliness, health, and social enjoyment shall abound. We have good reason to believe that some of the "grievances" recently made public were unfounded; and are assured on competent authority that the alleged notice to quit to complaining occupants is contrary to the fact.

Mr. Peabody's letter, just published, defining the objects he has in view in his additional gift of £100,000, show that he has ideas of the comfort, freedom, welfare, and pleasure of the residents in his houses, which indicate a liberality of mind, as splendid as the liberality of his great donation to the industrious workmen of London. We may, in this Journal, afford to working men the protection which any publicity of ours can secure for them, in case they have grounds of complaint; but while we do this, or take the liberty of suggesting any improvements we may think reasonable, in administering this important trust, we shall as earnestly and as frankly counsel the tenants to study all the means by which they can co-operate with the trustees in giving effect to the generous intentions of the donor; and we shall be glad to believe that his Excellency the American Minister will always be able to report home, that the working classes of the metropolis of England appreciate and profit by the social comforts provided for them by the liberality and cosmopolitan spirit of a distinguished American citizen.

A Special Visitor.

Letters from Lancashire, by a Lancashire Lad.

V.—In and about a Workhouse.

For some time past very considerable attention has been paid to the treatment of paupers, casual and others, in our metropolitan workhouses. Every now and then a case is made public in the newspapers which causes the heart to beat quicker than usual. The articles of the "Amateur Casual," in the *Pall Mall Gazette*, have shown how much of the horrible may be found in our midst. Others have tried to follow that writer in depicting what is picturesque in certain parts of our Poor Law system.

The workhouse with which I am most familiar is the Manchester new one, situated at Crampsall, some three miles distant from the centre of the great town. It stands on the brow of a hill, and covers about four acres of ground. It is an immense place, and has accommodation for nearly 2,000 inhabitants. The buildings are in three divisions. The outer one, at which entrance is obtained, has a lodge at one side of the great gate, and a machine-room at the other. In this same section of buildings are the probationary wards—one for males, and the other for females. It is noticeable that the males and females, all through, occupy opposite sides of the house. Supposing that to-night some poor fellow should go up to the "house" with his order from the relieving officer, he would be admitted at the gate, sent on to the offices in the front of the middle division of the buildings, and then all particulars respecting him would be taken down in writing, and he would be sent back to the probationary ward. Here he would be inducted into the bath-room. This is a small room in which the bath stands. There is none of the horror of making some half-dozen or more tumble into the same water—water, too, of the consistency and resemblance of mutton broth—but each in-comer has the bath refilled for himself, and can have it of the degree of heat which will please him best.

Starting from the gate, with the intention of

going through all the buildings, a stranger would have a task which would occupy much time. On the male side he would see the able-bodied men at work, some rope-opening, some picking oakum, some few cobbling or joinering, some mat-making, and others grinding corn at hand-mills. He could not help noting that, in this workhouse at least, there seems to be very great care taken that everything requisite to health shall be properly attended to. Everywhere scrupulous cleanliness; all possible arrangements for protection from fire; and a system of thorough ventilation —all these the visitor observes, as he passes along. He incidentally obtains some notion of the way in which the officers behave to the inmates. For instance, passing along the men's workroom, I found a few old men sitting apart from those who were opening rope, and, asking the reason, was told that, having complained that the dust from the ropes affected their respiratory organs, the master had at once arranged for their oakum-picking to be done beyond range of the dust.

Passing from the men to the male children, we find a lot of them squatting on a huge table, under the superintendence of a professional tailor, who instructs them in his trade, and sets them work to do. These lads, and such men tailors who happen to be in the "house" from time to time, make up and mend all the clothing of the male inmates. A little further on, and we come to a room in which a lot of lads sit cobbling and making shoes, each at his separate stall. Here, again, the lads are under the superintendence of an expert artisan, who helps them in mending shoes for the entire establishment. From this room to the boys' school is not far. There is a schoolmaster to instruct them, and the usual paraphernalia of the schoolroom—maps, slates, and black board—hanging or standing about. On our way to this school, we turn aside to see the lads' bath-room. Here is a large plunge-bath, in which the lads delight to sprawl about; and having had their fill of that, they can move to the dressing-room adjoining, the floor of which is covered with wooden stillages, to save their young feet from the cold of the stone floor.

Crossing over to the other side of the central pile of buildings, we come to the girls' school and dining-room, and just happening to be here when the dinners come up, we have a chance of seeing how the young things take their food. The girls' dining-room, and that is the boys' too, is a long room, having tables, looking like the narrow desks which may be seen in old-fashioned schools, and each table has a long wooden seat behind it. The girls sit here, each with a tin dish before her, containing the food as apportioned to each. Dinner being eaten, the centre of the room becomes a place for play until school hours begin again. In a room near to this I found a group of some forty infants, some of them little chubby-faced things, who, happy and comfortable just now, will have a hard life-battle to fight by-and-by. They were seated in front of low forms, upon which their dinner dishes rested, and enjoyed their food as most children do.

The able-bodied women, also, in this portion of the buildings, are engaged in washing-houses, in which all sorts of modern appliances for the speedy cleansing of dirty apparel are adopted. Other women, again, are employed in a huge laundry. Young, healthy girls are to be seen in a special wash-house and laundry of their own, learning to make good washerwomen and good getters-up of linen.

In some of the upper rooms of this part of the "house" the women whose chief disease is old age are gathered together. It is very touching to see how carefully these are tended—how here and there a curtain slung across a rail shelters the entrance from cold-giving draughts; and how, in the bedrooms, over the head of nearly every bed, is a label fixed there, by order of the doctor, which tells that the woman sleeping there is to have "generous" diet. The women—such of them, at least, as are able to sit up—are sitting in Windsor chairs round cosy fires, and, though they wear the uniform workhouse clothing, recognised everywhere as the insignia of that Order of Poverty of which Douglas Jerrold wrote, it indicates that they have advanced from that lower grade of the same Order of which the insignia are—rags and their concomitants. There is every evidence that these old women appreciate the kindness which is bestowed upon them.

It is, too, in this part of the house that the nurse-children are kept. The rooms are warm, and little cribs stand about, in which some babies, having just been feeding heartily, are lying fast asleep. Here and there a little fist, about the size of a clock-hammer, lies clasped on the top of the coverlet, whilst its owner, his lips just a little apart, and his cheeks having a delicious flush of colour upon them, is, let us hope, dreaming happily. There are rooms in which children may learn to walk. In the centre of each of these rooms there is a large pen-like structure, the rails round it being just high enough to prevent a baby from tumbling over.

Having looked through this central portion of the house, we go on to the third division. This, being the most sheltered from the inclement winds, has been selected for the infirmary, or hospital, and the imbecile, epileptic, and idiot wards. This is the division of the house which I like best, although it raises the saddest feelings. Throughout the rooms here, one notices that additional care has been taken to make them as pleasant as possible. Not only are there large wooden screens covered with woodcuts from the illustrated journals placed inside each door, but on the walls are coloured pictures, most of them tastefully selected, and the subjects being in no instance of a gloomy character. In the hospital, whether it be that for men or that for women, the visitor cannot help noticing the care bestowed upon the inmates. Those suffering from different diseases are separated. In one room are a lot of children suffering from skin diseases; in another, still more children suffering from sore eyes, and for these the light has been softened by the dropping of green-striped curtains over the windows. It is pleasant to look at these little things lying in their little beds, although suffering thus. Each has a word for the master as he comes into the room; and one wee thing, lolling pettishly over the side of his bed, repeats, time after time, "*I* said good morning, sir," as though he would intimate that the master had not taken sufficient notice of him. The men and the women are, it would seem, tended as well as the children.

The epileptic and imbecile wards have now 92 patients on the male side, and 139 on the female side. A first entrance into these rooms is not so pleasant. There are few men who can look on unmoved when, for the first time, they see large numbers of their kind who exhibit in their countenances some signs of the absence of reason, or who suffer from frequent epileptic fits. Perhaps, as you pass along, you see one man lying in a fit on the floor, his head raised slightly on a cushion or pillow; or perhaps you see one, or more than one, just recovering from an attack. Just the same things are seen on the female side of these wards. Some of the patients have four, or six, or more of these fits daily. When they are not punished by their sad ailments, some little occupation is found for them. The males do a little mat-making, or open a few flocks for the stuffing of pillows. Some of them go out and do some gentle sort of work upon the farm when that is deemed beneficial. On the female side much more variety of occupation is found. Some twenty or more work frequently at shirt-making or other plain sewing; others may be seen knitting stockings, crotcheting, netting, and doing other kinds of fancy work. Some time ago my interest in this place was increased by the knowledge that the officers of the workhouse got up a series of entertainments for these imbeciles in the winter of each year. I have attended many of these, have been in the little make-shift theatre, fitted up and decorated by the officers themselves, and have seen these poor people laugh most heartily at "Box and Cox," and the "Area Belle," "Taming the Tiger," and other well-known farces, the parts in each piece being performed by workhouse officials. Concerts, too, have been given, the officers obtaining the assistance of friends residing in or near Manchester. At times, too, some of our popular Lancastrian authors have contributed largely to the enjoyment of these inmates by reciting some of their own stories or songs. Each Christmas a very grand ball is given. Long before the time the female patients prepare their dresses, some of the material being lent for the occasion, and some being paid for from a private fund, the result chiefly of extra labour on the part of the women themselves. This ball has become quite an institution, and many friends go up to witness the doings. The wards are decorated very elaborately, and one is amused at noticing that female ingenuity has been equal to using tissue-paper in the decoration of the person as well as in the decoration of the room.

Let me briefly refer to the general arrangements of the place. In describing the central pile of buildings, I forgot to say that *there* the church was situated, at which the chaplain preaches to the inmates and officers twice each Sunday, and reads prayers, at stated times, during the week. There is also an arrangement whereby the Roman Catholic inmates have a chapel to themselves, and services led by their own priests. The whole time of the chaplain is occupied by attending to the spiritual needs of the inmates, and I might say here that, during the present winter, he has entertained them with a series of concerts of sacred music. There is, too, a resident doctor, whose perpetual presence is of very great advantage in such an institution as this. There are more than thirty officers, and each of these has his or her duties so defined that unpleasant collision is avoided. There are night officers for the hospital, the imbecile wards, and the wards in which young children are. One of the busiest parts of the whole place is that where the cooking and the distribution of food takes place. The huge boilers, and their white-aproned attendants, have plenty of work to do; and butcher, and baker, and other tradesmen, have to send large supplies to this monster house. The consumption in one very recent week was as follows:—Bread, 4,726 lbs.; oatmeal, 1,698 lbs.; India meal, 538 lbs. (to mix with oatmeal); rice, 82 lbs.; treacle, 50 lbs.; coarse meat, 1,157 lbs.; fine meat, 320 lbs.; potatoes, 20 loads; peas, 50 quarts; tea, 35 lbs.; sugar, 226 lbs.; butter, 220 lbs.; sweet milk, 206 dozen quarts; new milk, 42 dozen quarts; beer, 48 gallons; porter, 176 pints. Besides these articles there were numerous others: wines and spirits for the sick, eggs, arrowroot, &c. The diet would seem to be ample, and the doctor has the power to order anything which his patients may need. He has his drugs in the house, and these are in the charge of the dispenser of medicines.

I should do wrong if I did not conclude with a word of praise to the officers. The master and matron, and those who are under them, have shown so much sympathy with those who are most helpless, that they deserve more praise than I can give. The guardians are aware of the character of their servants, and, I believe, will show that they can rightly appreciate them. Not content with the present means for the outdoor recreation of the imbecile men and lads, the guardians are about laying out a large piece of ground for cricketing, foot-ball, &c. The women have a large and well-sheltered recreation ground, with a huge grass-covered hillock in the centre, from which they may view the country round.

THE TEXTILE MANUFACTURES OF AMERICA.

Lowell's 33 cotton mills employ 948 males and 1,650 females, and last year produced 7,125,953 dols. worth of fabrics; two calico and muslin-de-laine mills employed 188 males and 11 females, and turned out 3,167,122 dols. worth of fabrics; five carpet mills employed 382 males and 573 females, and turned out 3,570,435 dols. worth of carpeting.

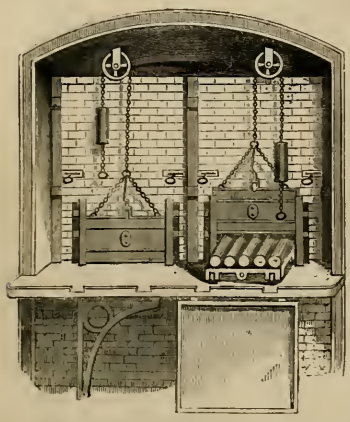
Fall River, Massachusetts, has 15 cotton mills, having 241,218 spindles, consuming 5,548,044 lbs. of cotton, and employing 2,654 hands; 2 establishments for calico printing, producing 5,616,000 yards, and employing 488 hands; 3 manufactories of spool cotton, employing 217 hands; 1 woollen mill, with 6 sets of machinery, consuming 125,000 lbs. of scoured wool, turning out 126,300 yards of cashmeres, and employing 103 hands; 1 linen mill, producing 1,216,464 yards of crash, and employing 214 hands; 1 rolling, slitting, and nail mill, using 490,000 dols. worth of stock, manufacturing 2,656 tons, and employing 265 hands; 2 furnaces for pig iron, turning out 837 tons, and employing 63 hands; 3 establishments for manufacturing cotton and woollen machinery, turning out 103,500 dols. worth, and employing 103 hands; 2 establishments for steam boilers and engines, turning out 16 engines, and employing 30 hands; 7 establishments for manufacturing clothing, employing 112 hands, and an indefinite number of smaller enterprises, that give life and animation to a town, and keep busily employed an industrious population.

Great Suspension-bridge. — An American paper states that the Cincinnati bridge about to be suspended across the Ohio River will be the longest in the world. Its total span will be 1,057 yards. The massive stone piers tower 110 feet over the floor of the bridge.

*Coin, from the Crucible to the Press.**

In the accompanying illustration, which gives an accurate idea of the furnaces used for annealing, the state of things we have partially described in relation to it will be seen. One oven is shown closed, as having received its charge of cells and bars; the other partially open, and just about to take in that which is shown at its mouth. The fires are placed in the rear of the ovens, and are governed as to the extent of heat they give out—and which must never reach the fusing point—by an excellent arrangement of dampers, and a self-feeding apparatus. About twenty or thirty minutes suffice for the thorough heating of the cells with their rich contents; and then they are withdrawn to make room for others.

The covers are removed, and the bars are dropped, while hot, into a cold water bath, which



A PAIR OF MINT ANNEALING FURNACES.

has the effect of completing the softening process to the exact degree required.

Now the smaller mills, arranged on similar principles to those described in reference to the "breaking-down" apparatus, are brought into requisition. Lamination, and consequent elongation and attenuity of the bars, follows in rapid succession; and instead of strips or fillets, we soon have ribands of gold, thin as the ashen wand of a harlequin, and almost as flexible. It now becomes essential to treat them with extreme care; for it is a *sine quâ non* that they be brought to a uniform thickness. The constant application to their edges of a graduated steel gauge, as they leave the smaller and more delicately-fitted mills, and the gentlest of gentle squeezings between the rolls, enable the workmen to effect this object pretty accurately. Another operation must be performed, nevertheless, before an absolute uniformity of thickness throughout the whole of the ribands can be obtained. Of that operation we shall speak presently, for it is effected in another room. So far as the great rolling-room is concerned, its mission lies in the production of *gold, silver,* or *bronze* ribands—as it may happen—of tolerably equal thickness; and that, we have seen, has been accomplished in respect of the bars whose career on the road to sovereignty we are tracing.

Now, therefore, commences the weighing up of ribands, cuttings, clippings, ends, splinters, *débris,* and dust, and the comparing of the morning's out-going with the evening's in-coming metal. Usually these two agree; and while the ribands are next morning sent forward to the adjusting-room, the scrap is returned to the melting-house. The officer of the adjusting-department, instead of measuring out his ribands, as a draper would do, weighs them out to his customers, or workpeople, rather—for weighing is the coiners' "guide, philosopher, and friend;" and straightway they are conveyed to the equaliser, or "draw-bench," as it is technically called.

This apparatus consists of a long table of iron, over the upper surface of which traverse longitudinally and continuously four chains, formed of gun-metal and wrought iron. The links of these endless chains—for such they really are—fit exactly certain projections on a wheel working in a tunnel below, and propelled by steam-power. The heads of the tables are simply boxes for the reception and retention of four pairs of hardened, truly-turned, and highly-polished steel cylinders, fixed in pairs, one above the other. In appearance these cylinders are models of the large rolls, on a scale of an inch to the foot. They do not revolve as the rolls do, however, but are firmly screwed into recesses of iron fitting their circumferences, supporting them from end to end, and preventing any tendency to elasticity. Between these steel adjusters all ribands have to be drawn, for the removal of inequalities in their thickness. This process, indeed, resembles wire-drawing in its principle; and no doubt the idea of performing it was gained from that ancient and ingenious operation.

Above each of the travelling-chains is placed a pair of travelling-nippers, having steel teeth, and so constructed as to be readily attached to or detached from the chain. These parts of the contrivance are known at the Mint as "dogs;" and, unquestionably, they bite sharply, and hold tight when they are once fairly set upon their victims—gold or silver ribands—and they never unclose their teeth until they are disengaged from their several chains. The ribands of gold, before being put into the draw-bench, have their ends compressed slightly at a machine adjacent to it, so as to pass between the cylinders readily, and thus allow the dog to bite them as they project on the opposite side. A simple arrangement opens the dog's mouth, and, literally, the pulling the chain gives to its tail causes its teeth to indent themselves in the gold, and tug it by main strength between the bright and true surfaces of the steel cylinders.

The cylinders themselves are adjustable as to distance by screws and *indices,* and should, of course, be secured at that point which leaves a space between them agreeing with the thickness of metal required for the coin to be manufactured. In order to be assured that this is the case, a workman, known as the "tryer," is stationed close to the draw-bench with hand-cutting punches, and tiny pairs of apothecaries' scales, for punching blanks from the ribands here and there throughout their length, and weighing them. He knows that a piece of gold or silver of a given diameter and thickness must be of a certain weight within the veriest trifle, and thus he constantly tests the drawn-out ribands. Assured that the whole batch, after being drawn, are of the proper thickness—neither too thick, so as to yield heavy blanks, nor too thin, so as to produce light ones—the ribands are dispatched to the cutting-out room.

* Continued from page 177.

Things Talked About.

Next to the Irish difficulty and the ravages of the cattle plague, the claims of working men to share not only in the government of the country, but to enjoy their full proportion of the benefits which the advance of practical science proffers to the whole body politic, are occupying the attention of the Imperial Parliament. The new metropolitan members are especially doing their duty, and fulfilling the expectations indulged in when such men as Mr. Torrens and Mr. T. Hughes were returned to Parliament. The former gentleman has manfully taken in hand one of the very greatest questions of the day—a question to which the Working Man has, since its first issue, especially devoted itself—the provision of fitting house accommodation for the working classes. On Tuesday, the 20th ult., he obtained permission to bring in a bill on the subject, the object being to enable the Home Office, on the requisition of any corporate body, or any twenty persons residing in one district, to order an inspection of any over-crowded or disease-breeding locality, and that the Public Loan commission should advance the money necessary for rebuilding or undertaking proper sanitary measures. Mr. Torrens's bill differs from that introduced by Mr. Childers, the Under Secretary of State for the Home Department, described by us last week, inasmuch as the latter is merely permissive, while the bill introduced by the member for Finsbury is much more stringent in its operation.

Mr. Thomas Hughes, the member for Lambeth, has announced in the House that he shall oppose every metropolitan bill which ignores the claims of the poor man to compensation, when the companies ruthlessly turn them out of house and home. We are glad to see that Mr. Hughes's determination was sympathised with by members who by no means generally share his political opinions. It will come to this, and the sooner the better, that every new railway or public improvement scheme must include the provision of suitable dwellings for the working classes displaced, and that the right of weekly tenants to compensation—a right at present ignored—will be acknowledged.

Mr. Clay, the member for Hull, has made an attempt, by the introduction of a bill, to bind the House to an expression of opinion on the subject of an intelligence franchise, and so influence the Governmental measure of Reform. Mr. Clay's plan is, that any man of full age, and with no disability, not having a vote, may submit to an examination by the Civil Service Commissioners, on whose certificate of competency in reading, writing, and elementary arithmetic he would be placed on the registry. But he must have resided six months in one place before going up for examination, so as to have acquired a certain character for stability. This measure, if passed, would practically open the franchise to the great majority of working men. There is little chance of its being passed; but there is no doubt that ministers are cautiously feeling their way to a measure which shall give the labouring classes a much greater share in the representation than they at present possess; and the debate on Mr. Clay's bill will doubtless bring forth expressions of opinion which will materially strengthen their hands.

The Dorsetshire labourers are beginning to contradict the statements of the Earl of Shaftesbury as to their comfortable condition. Whatever the noble earl may think of the matter, the labourers themselves are not so easily satisfied with their wages, food, and lodgings. According to letters of two of the men, which have found their way into the newspapers, "Lord Shaftesbury knows little or nothing about his own people, and has understated the hours of work and overstated its profits by one-half." The "happy rustics," in clean smock-frocks, sporting on the village green, are, it seems, a pretty fiction, and the real Dorsetshire labourer is, after all, a wretched, half-starved, ill-lodged, poor fellow, hovering on the very verge of actual destitution.

We hear good accounts of the state of trade in the iron and coal districts of South Wales. Continental engineers, we know, are competing with English firms, and sometimes successfully; but we are told, by way of compensation, that they are resorting with increased eagerness to South Wales for railway iron. So, in the end, this country will not be very much the worse. In the month of January alone 4,000 tons were shipped to Alexandria. Foreign orders for steam coal, too, are coming in thick and fast.

But if we get experience in diminution of trade in the unmanufactured article, it behoves our manufacturers to see that foreign houses do not injure our *prestige* as manufacturers. The French ironmasters are very prosperous just now, and the cotton and woollen manufacturers are very brisk, scarcely able, indeed, to meet orders. In other times, England and France were rivals in another fashion. Our contests now are in the interests of industry and the arts of peace.

Under these circumstances, it must be a matter of regret that iron shipbuilding on the Tyne and Tees is at present nearly at a stand-still, owing to a dispute connected with the nine hours' movement. The men are firm in their demands, and the employers appear to be equally unyielding. A lock-out is threatened.

While referring to the subject of iron shipbuilding, we may notice that the strange-looking "cigar ship," which has been for a long time past one of the sights of the Thames, was launched on Monday, the 19th ult. It is the fourth of the kind which has been constructed, but the first one built in England. Messrs. Winans, the patentees of the design, are sanguine as to the speed and safety of these curious vessels, and their value especially in carrying mails. The *Ross Winans*—the name given to the new ship—is 256 feet long, and only 16 feet wide, and is plated with iron and steel. She is divided into 26 water-tight compartments, and affords good accommodation for passengers. How she will behave on the broad Atlantic waves is a question which experience alone can decide.

The anniversary dinner of the Association of Foremen Engineers (an institution which we recently described in our columns) was attended by several engineers of eminence. Mr. Samuda, M.P., and other gentlemen, confirmed the remarks we have made above, by saying that, in face of "the great competition with English engineers that is springing up on the Continent, when the French and Belgians are beginning to send locomotives and railway iron to England, it is time for practical men to be on the alert."

The great Manchester firm of Greening and Company (a limited company), manufacturers of iron and wire fences, gates, &c., have resolved to allow their clerks, foremen, and workpeople a certain share of the profits under certain conditions, one of which is—"Whenever the net profits in any one half-year exceed 7½ per cent. upon the gross paid-up capital of the company, then, for every additional 2½ per cent. dividend or bonus paid to the shareholders upon their capital, a dividend or bonus of 2½ per cent. shall be paid to every person employed by the company upon the amount of wages earned by him or her in the same half-year: provided always, that such participation in profits shall not give

to any of the workpeople (not being shareholders) any right to interfere in any way in the management of the company's business, nor shall it render them liable to any debts or responsibilities incurred by the company." Provision is also made for the workpeople becoming shareholders (of course, with a voice in the management then) on easy terms. This is almost a step towards Co-operation.

Our attention has been called to the West London Youths' Institute, Queen's Road, Bayswater, where, for a very moderate subscription, a lad may enjoy the advantages of several classes, the use of a lending library and reading-room, a gymnasium, and the privilege of attending lectures. Mr. Russell Gurney, the Recorder of London, and one of the Jamaica Commissioners, is the president. Mr. C. Baker, one of the honorary secretaries, writes to us:—"Several of us have been working for years at these institutes for working youths, and they have proved most successful." We are very glad to hear it, and trust their excellent example may be followed. Dr. Hook, the Dean of Chichester, presided at the recent annual meeting, when a number of prizes were distributed.

The friends of Co-operation owe it to the cause they advocate to guard the public against imposition. It would seem that some so-called Co-operative Stores have been started, and that numerous poor persons have suffered in consequence. One such case came before the magistrate at the Thames Police Court, on Wednesday last, when, to quote the police report, "a very poor, thinly-clad, and wretched-looking woman, named Mary Anne Loane, came before Mr. Paget to complain that she had been defrauded of 20s. by the St. George Co-operative Provident and Industrious Society (Limited) Stores, 20, John Street, Cannon Street Road East; 1, Catherine Street, Commercial Road East; store and bakery, 4, John Street, Old Gravel Lane, St. George's-in-the-East. It was explained that the poor woman had made a similar application to Mr. Partridge on a former occasion, when that gentleman advised her to make a formal demand to the so-called Co-operative Society, in accordance with one of its printed rules. The applicant stated now that this application too had been fruitless. Mr. Paget having looked over the rules of the society in question, stated his great regret that magisterial jurisdiction did not extend to such an affair as the present. Several other poor people who had invested small sums in the society, were waiting with great anxiety the magistrate's decision." We should like to hear something more respecting this "Co-operative Society," and will willingly afford room for a valid explanation on the subject.

Co-operative Intelligence.

The Rochdale Equitable Pioneers' Society (Limited).—Mr. Ashworth, the manager, writes:—"As the meat question is the most talked of now, I enclose you a paper showing the quantity, and weight, and cost of our meat sold for the last seven weeks, ending February 6th, 1866. I may also inform you that the first stone for our new central stores was laid on Monday last, February 12th, but all was done very quietly. I am also glad to inform you that we still keep on the increase; the total cash received last week, ending February 13th, is £4,586 1s. 5d., being an increase of £1,064 1s. over the corresponding week last year.

Butcher's Meat sold during the last Seven Weeks, ending February 6th.

	No.	Weight in lbs.	Cost.		
Beasts.....	107	 65,418	..... £1,668	6	3
Sheep.....	209	 16,967	 539	1	0
Pigs.....	111	 23,211	 613	6	4
	427	105,596	£2,820	13	7

New Wortley, Leeds.—A Co-operative Meat Society is being started. At the public meeting, held a few days since, 600 shares were taken up. Operations will commence immediately.

Derby Co-operative Provident Society (Limited).—The usual annual tea-party and *soirée* of the members of the above-mentioned society, and their friends in the town and neighbourhood, who are favourable to the principle of mutual Co-operation in matters of business, has been held in the Temperance Hall. A very large number were present, and the hall was well filled. The mayor (F. Longdon, Esq.) presided. The report for the past year showed that the amount of business done by the society, or, in other words, its actual returns, was £14,870, and the profits realised £1,128 17s. 4d., which had been divided as follows:—To dividends paid on members' purchases, £882 17s. 2d.; interest on capital invested, £143 0s. 3d. The sum of £102 19s. 11d., allowed for depreciating the nominal value of the property and fixtures, had during the same time very considerably improved the property. For that, and several other reasons, the financial condition of the society was never in a more satisfactory state; and considering the discount of five per cent. given on capital, and the very simple and easy mode of investing and withdrawing that capital, the committee could confidently recommend the society as one of the best and safest modes of investment open to the working classes of this country. It also further stated, that arrangements had been made during the past year which enabled the committee to work the society with a much smaller quantity of goods on hand than had been previously held, which was another improvement in the working condition of the society, for with the surplus capital so obtained they had been enabled to pay off the mortgage on the Nuns' Street property, and had thereby saved the handsome sum of £22 per annum, a circumstance highly creditable to the society, increased in its value by the fact that the whole of the property had been transferred into the hands of the society.

The Bradford Industrial Co-operative Society (Limited).—On Shrove Tuesday, a tea party was held in the Independent Schoolroom, Lister Hills, in connection with the Branch Store, when about 160 persons partook of tea. After tea a meeting was held, the chair being taken by Mr. H. W. Lush, President of the society. Addresses were delivered by the Chairman, Mr. Wainwright (ex-President), Mr. Roberts, and others, on the advantages of Co-operation. This society commenced business in 1861, and now counts upwards of 500 members, three branch shops, and one central, the weekly sales amounting to upwards of £250. On looking over our ledger, we find one member has paid cash to the society £1 9s. 6d., and has withdrawn from the society £7 4s. 6d., and at present has in £2 3s. 3d.; another paid cash 6s. 3d., has withdrawn £16 5s. 7d., and now has £1 5s.; another paid 15s., and has withdrawn £3 18s. 10d., and at present has in the funds of the society £8 18s. 3d.; and there are many even more striking than these. With such facts as these before working men, it is not a wonder to see them rush to the Co-operative shop, which is their own, and they have the satisfaction of knowing that their goods are bought at the best market, and the profit, after all expenses are paid, is divided amongst them in proportion to the amount each has purchased. There was a choir present, who sang various pieces of popular music, which greatly enlivened the meeting; also various readings from popular authors, as a diversity. A very pleasant evening was spent; and no doubt but the object for which it was got up will be gained—viz., that of inducing the working man to become a Co-operator. The meeting closed with thanks to the ladies, choir, and chairman.

Co-operation at Silkstone, near Barnsley.—This well-known colliery district is beginning to feel the advantage of the Co-operative movement. The success which the Silkstone Pioneers' Co-operative Society has attained was celebrated by a well-attended tea-meeting, in the village schoolroom, one evening last week. During the evening several addresses were delivered on the subject of Co-operation. The balance-sheet of the society for the half-year ending December, 1865, showed that four per cent. on the business done, and nearly forty per cent. on the capital invested, had been made during the past year. The society was shown to be progressing, the sales amounting to about £20 per week. The system of giving credit to members was shown to be unnecessary, and was discontinued.

Proposed London Co-operative Meat Company (Limited).—Capital £2,000, in 4,000 shares of 10s. each. The promoters of the proposed company call the attention of all who think that the present high price of meat is due to a monopoly established by meat salesmen, to the manifest advantages of a Co-operative company, that will simply undertake to buy meat of the best quality in the best markets, and sell it to the members of the company, and to the public, at the lowest price that will cover the weekly expense of working the same. It is proposed to limit the depôts to 500 or 1,000 shareholders, and rent good shops in various parts of London for the sale of meat on a new plan—viz., every joint to have a ticket upon it with the weight and price marked in plain figures, and signed by the proper officer of the company; each joint to be numbered and recorded in a book kept for that purpose, so as to prevent mistakes or extortion. Applications for shares may be made by letter, addressed to Mr. Allen, secretary, *pro tem.*, 47, Hethpool Street, Paddington, W., who will give every information on this subject.

The Joint-Stock Coal Company (Limited) presents an excellent example of what can be accomplished by Co-operation. After declaring a dividend of 10 per cent. on the capital, an additional bonus of 4 per cent. of the total profits has been paid to the consuming shareholders, which is equal to a return of 2s. 6d. per ton upon the price paid for the coal, thus giving to the shareholders coal in reality at cost price.

General Information.

CLUBS AND INSTITUTES.

Hollinwood, near Oldham.—A crowded meeting was held, on Tuesday evening, in the largest schoolroom of this populous "village" (containing 10,000 inhabitants), for the purpose of establishing a Working men's Club and Institute. The chair was occupied by Benjamin Lees, Esq., millowner, supported by John Platt, Esq., M.P.; William Lees, Esq.; Alfred Butterworth, Esq.; Henry Buckley, Esq.; and the Revs. J. Robinson, incumbent of Hollinwood; B. T. Thompson, curate; J. Williams, Independent minister; — Eastwood, Wesleyan; and W. Rothern. The Rev. H. Solly delivered an address, explanatory of the objects of the meeting, and was followed by Mr. Platt and several other gentlemen. Various resolutions were moved by working men, and seconded by some of the above-named gentlemen, and were heartily and enthusiastically adopted. Mr. Platt, in moving that a subscription-list be opened, announced his intention of giving £50 towards the proposed building, amidst loud cheers. Messrs. Lees and Butterworth announced, on behalf of their respective firms, that they would each give £250, on hearing which the gratitude of the men was very warmly and vociferously shown. Mr. Solly observed that he had never attended any meeting where such liberal sums had been promised for the object, which, however, is well deserving of all that can be done for it. Cordial votes of thanks were given to that gentleman and Mr. Platt, and the meeting separated. It would be well for the working men in other districts if they could generally meet with such liberal help in establishing these useful societies.

WAGES AND STRIKES.

Great Meeting of London Engineers.—A crowded meeting of the operative engineers employed in the districts of Poplar, Limehouse, and Blackwall, was held on Friday evening at the Burdett Hall, Burdett Road, Limehouse, in furtherance of the movement for an advance of wages. Upwards of 1,000 men were present, both society and non-society men. A resolution was moved, "That the men in the eastern districts consider that an advance of 10 per cent. should be made upon the present rate of wages." An amendment was then moved, "That the minimum rate of wages be fixed at 36s. per week, with 10 per cent. advance on that amount." On the vote being taken, there was a large majority in favour of the original resolution for 10 per cent. on the present rate of wages, and the resolution was ordered to be sent to the aggregate meeting as the opinion of the eastern districts. From the tone of this and other meetings that have been held, there is little doubt that, in the event of the above being refused by the employers, an extensive strike will be the result.

The Preston Spinners and Minders.—The master cotton-spinners and manufacturers of Preston and its neighbourhood have received a memorial from their spinners and minders, asking for an advance of wages. At a meeting which the spinners and minders have had on the subject, it was stated the average wages of the minders of Preston was 17s. 10½d. a week, whilst the minders of Chorley were getting at the rate of 30s. per week for the same description of work.

The Lock-out of 400 Miners at Thorncliffe.—The lock-out of about 400 miners at the Thorncliffe and Chapeltown Collieries, belonging to Messrs. Newton, Chambers, and Co., still continues, with no signs of a termination. A deputation waited upon the proprietors of the mines a few days ago, and was given to understand that each man who wished to begin work, must apply to the proprietors individually, and not as a deputation, when they would consider the applications. A large meeting was afterwards held, when it was resolved that no more offers be made to the masters. The men locked out are receiving from 8s. to 10s. weekly from the Miners' Union, according to their circumstances. The men in the district who have obtained the advance number about 8,000, and seem willing to support the 400 whilst out of work. It is to be feared that the struggle will be a severe one.

About three weeks ago the puddlers employed on the Ravensdale Iron Works, Tunstall, dissatisfied with the quantity of iron supplied to them for working, struck work, but resumed it after two or three days' idleness. Since then a new manager, to whom these men object, has been appointed, and about a week since they again turned out. The proprietor (Mr. W. Bates) has closed the works, and upwards of 600 men and boys are thus "locked out" until the malcontents unconditionally return to work.

The Durham Masons have turned out on strike for a rise of wages from 28s. to 30s. per week, and shorter hours of labour, and three months hence for a half holiday on Saturdays.

There is every probability of a disastrous strike and lock-out in the file trade in Sheffield. A number of the file-grinders are now on strike, and unless an arrangement is effected within a few days, the whole will be unemployed, and the file-cutters will be locked out. The history of the dispute is brief. Some time ago, when the revival of the American demand imparted great animation to nearly all branches of Sheffield trade, the file-grinders met and demanded an advance, which the masters said would be equal to 33⅓ per cent. on the prices they were then paying. The advance was refused, and the grinders then sought the assistance of the powerful Filesmiths' Union. Several stormy meetings have been held, and at one of them nearly the whole strength of that Union (4,000) was present. The file-cutters have revived a demand which was postponed last year, and they now seek for a considerable advance. It should be stated that the file-cutters have to deal with the file after it leaves the hands of the grinders, and therefore they depend upon those men for work. The masters, upon receiving notice from the grinders, gave notice to the whole of the forgers and hardeners, in order that they might not have them upon their hands when the grinders were out. The filesmiths have deter-

mined to support the grinders, who are backed up by the Association of Organised Trades of Sheffield. The file-grinders say that their funds will support them in a strike for three months; but the case is different with the smiths, who have 20,000 persons—men and their wives and families, apprentices, &c.—involved in the struggle.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *Le Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

LEICESTER WORKING MEN'S CLUB.

To the Editor of the "Working Man."

Sir,—I have read with care Mr. Coaton's letter in your last number, having waited with some anxiety to see an explanation of a transaction, concerning which I had already been informed by persons at Leicester. Of course, I have not the slightest right or wish to interfere in the proceedings of the members and friends of the Leicester Working Men's Club and Institute, or of any other club; equally, of course, I cannot help feeling a deep interest in those proceedings, and, in common with every friend to the movement, shall doubtless be willingly allowed the right of commenting upon them. For, quite apart from any help I may have been instrumental in giving towards the establishment of a particular club, and which might justify my urging recommendations or warnings, it must never be forgotten that, as with individuals, so with societies, no club lives, prospers, languishes, or dies, to itself alone. Other clubs, both in *esse* and in *posse*, are materially affected by the wisdom, or folly, the zeal or apathy, of each club in a given district; while the progress of the whole movement is, of course, most seriously influenced by the success or failure of the various efforts made to promote it in individual cases.

Hence, when the news came that the committee of the Leicester Working Men's Club, in a question which experience shows is one of vital importance, had reversed the decision of the general meeting, I shared the surprise and regret felt by many of its best friends, but, of course, forbore writing to your journal, till I had seen the letter which Mr. Coaton told me he had written. Having read it, I need not say no one ought to doubt that the committee have acted with the best intentions, and in the belief that they were taking the fairest and wisest course open to them. But I confess that, after fully considering what is there related, it appears to me they have made two serious mistakes. I may be wrong, but surely, in the first place, they should not have included "intending members" in their invitation; and, in the second place, having done so, I think they should not have set aside the decision arrived at, on the ground that many had voted for it who did not at once enrol themselves as members. Would not the proper course have been to abide by that decision for a week or two, until they saw how many would join the club on that basis, or until they could summon another duly qualified meeting of *bonâ fide* members, and then have submitted the question to them? It is a serious thing for a committee to reverse the judgment given by a meeting which they themselves had called, and especially one called in terms so vague that it would be impossible to say of many persons whether they were justified or not in attending it. A man may *intend* to join a club, and a dozen circumstances may afterwards lead him to alter his mind.

However, if the men who voted in the large majority against the beer did not come forward in sufficient numbers to establish the club on that basis (and *eighteen* was certainly a very poor show), they could not wonder at the committee, after due time, taking steps to secure the support of the opposite section, and forming the club according to *their* views. But then one naturally asks, what time was given for the previous majority to enrol their names? That so few were given in at the meeting was certainly not a sufficient test.

As to the future, if I were living in Leicester, and saw that there was a considerable number of working men who would join a club which admitted beer, under due restrictions, and who would not join it otherwise, while a number of gentlemen were willing to give their money on that understanding, as Mr. Coaton says there are, I should not decline to belong to the club, or cease to take an interest in it. On the contrary, I should do what little I could to make the club prosper, in spite of that resolution, because I do not regard the admission of beer as anything morally wrong—only as a grievous mistake. One secret of England's progress is the habit of her people to bow to majorities in matters of expediency (and, I hope we may add, to resist them in general in matters of principle). Accordingly, though out-voted, I would still work for the club, and trust to my fellow-members either learning their mistake in time, and retracing their steps, or proving to me that I was mistaken. But if I saw there was a good chance of establishing another club in the town, on what I believe to be a far sounder basis, I should certainly give what money and time I could afford to promoting that in preference. It might be a very desirable course for the friends who disapprove of the decision of the committee in question to form another club, not in a spirit of opposition, but rather of friendly rivalry and mutual co-operation. There must be plenty of room for two or more clubs in Leicester, and, if well managed, they might materially promote each other's welfare. They could each work out their own theory of a club, and see which could do the most good. There need be no ill-feeling in the matter. If Mr. Allen and his friends have erred in the course they took, those who think so must feel well assured it was simply an error of judgment, and that they were placed in a very difficult position, when, to use Mr. Coaton's words, the enterprise "came to a dead lock," and between the two stools seemed likely to have a dismal fall. I only venture earnestly to hope that, wherever it can be avoided, whether in Leicester or elsewhere, committees will not legislate on questions that should be determined by general meetings, and that, in spite of differences of opinion on matters of expediency, those who desire the welfare of one another will heartily work together for the common good.

—I am, Sir, yours obediently, Henry Solly.

THE DEAR MEAT QUESTION.

To the Editor of the Working Man.

Dear Sir,—I find in your journal of the 10th, an appeal to myself and my friends, Dr. John Watts and Mr. Max Kyllman, to attempt the solution of this question, by originating a Co-operative Company strong enough to grapple with the whole difficulty. Will you permit me, in reply, to point out one or two matters which require consideration in reference to this proposal?

First, speaking for myself, my hands are pretty full just now, as you will readily believe, and I think I may say that the same applies to Dr. Watts and Mr. Kyllman. Divided energies do not bring success, and those who originate Co-operative undertakings have a great responsibility resting upon them to make each enterprise commercially successful. Failure would not only impair our influence for the future, but, as we well know, would be debited by the unthinking against the great principle of Co-operation itself. This was the case with the struggles of the early Co-operative Societies, and delayed the progress of the movement incalculably.

Second. It is doubtful if such a company would have the confidence of the working men upon whom we should have to rely for help. In Manchester, and many other places, the Co-operative Stores have lost money by this department of business, and given it up with a profound conviction that the trade has something peculiar in it which prevents it being made profitable by them. The late secretary of the Manchester society told me, some time ago, that he candidly thought Co-operators were too honest for the business.

Third. It is doubtful if the scheme would command the support of a sufficient number of moneyed men to provide the necessary capital. It could only be made to pay by placing it on a large enough scale to afford good and efficient management. Other trades are beginning just now to be very prosperous, and joint-stock companies (especially manufacturing ones) can be formed to pay readily 15 and 20 per cent. Investors can get 8, 9, and even 10 per cent. by advances, without fastening their capital at all. Is there any chance for your suggested company under such circumstances? You will see that I look at the question from the most matter-of-fact and business-like point of view. I have learnt to know that is the true way to help Co-operation. If you will, however, open your columns to working men, and to such of their wealthy friends as feel inclined to take part in the discussion, I will gladly read all that can be said in favour of the proposal, and try to form a reliable estimate of its chances of success as regards first formation and subsequent working.—I am, dear Sir, yours very truly,

Edwd. Owen Greening.

Manchester, February 16th, 1866.

INDUSTRIAL EXHIBITIONS.

To the Editor of the Working Man.

Sir,—It is with much pleasure that I purpose subscribing to and reading your new periodical, the Working Man. With yourself, I have long deemed such a publication necessary as an organ of the working classes, the elevation of which class cannot but result in the increased strength and glory of our loved country. I sincerely trust that the Working Man may reach the hearts and minds of hundreds of thousands among our sons of toil, and that thereby their social and intellectual position may be seen to improve, while those unhappy differences between employer and employed, which ever tend to injure *all* parties, should become less frequent.

The Working Man, if I understand rightly, is to notice and record all events concerning Industrial Exhibitions which may be deemed worthy of insertion, and it is upon the subject of those exhibitions that I desire to address you.

Nobody doubts the good results which are likely, if not sure, to accrue from such exhibitions; but, as a late exhibitor, and medal winner, I wish to call your attention to one point which, if attended to, would tend very much to improve the number and quality of articles exhibited thereat. I refer to the short notice usually given of the intention to hold the exhibition. The movement commenced in London, and so rapidly did it spread that many towns in the provinces got up similar exhibitions within a very few months of the first being held.

Would it not be much better, when determining to hold such an exhibition, to fix a date farther in the future than is usually done? Work which merits extra praise requires extra time to get up and complete, and must be done in such time. Such extra good specimens of workmanship are rarely made by the "working classes" to keep in stock, but only when "made to order." If longer notice were given—say twelve months—many exhibitors would not only show what they have by them, but would set to work to produce other articles even more skilfully turned out, if possible, than any of their previous efforts. When I lately became an exhibitor, I felt the full force of the necessity of a longer notice being given. I exhibited what drawings I had on hand, feeling at the same time that I had frequently possessed far better specimens of my work, which I would have again equalled and reproduced had not the time been too short.

I trust you will consider this subject, and urge upon intending exhibition committees the great need of giving more time. Energy.

FLOATING CO-OPERATION.

To the Editor of the Working Man.

Sir,—Having observed in your impression of February 17th your notice of "Floating Co-operation," and your opinion of the suitability of the scheme to the use of working men, allow me to state that I am willing to join with any number of respectable artisans willing to start such an affair, for the working men of the East End, because I believe that the East End generally are not much thought of by our brethren farther West; and I also believe that there is nothing like the unity and brotherly feeling among the East End working men that there should be. I am only a working man myself, and it often grieves me to see the manner in which one working man treats another. And, sir, you say that the purchases of the better class of artisans are not despicable. Certainly not; for the class to which I belong earn from 7s. to 13s., and often more, per day, and upon no occasion less than 6s. per day, and, as a whole, are steady, respectable men.

Hoping you will give this your kind notice, and grant it a space in your valuable columns, I remain, Sir, yours sincerely, A Blackwall Shipwright.

Feb. 19th, 1866.

[Should the above letter elicit any response, we will forward the communication to the writer.]

TO CORRESPONDENTS.

J. G. (Hulme).—The series of illustrated articles on "Art Designs" will include the subjects referred to by our correspondent.

T. W. (Peabody Buildings).—We refer our correspondent to our description of the Buildings, in another page. He and his friends will see that we are quite satisfied the complaints which have appeared on the subject were to a great extent unfounded.

Typo.—The statement in the first article on "Coin from the Crucible," that "it was during the year 1810 that the first coining of pence took place," had reference to the operations in the New Mint, on Tower Hill. Of course there was a copper coinage long antecedent.

A Working Apprentice.—Not quite up to the mark for publication.

C. M. (Basingstoke).—Charles de Secondat, Baron de Montesquieu, was an eminent French jurist. He was born near Bordeaux, in 1689, and educated for the legal profession. Having been elected a member of the French Academy, he devoted himself to literary pursuits, and travelled through Germany, Holland, and England, where he resided two years. On his return to France he published a valuable work—"The Causes of the Greatness and Decline of the Romans;" and, subsequently, the famous book by which he is best known to English readers—"The Spirit of the Laws," an exposition of the principles of political science. He died in 1755.

S. Wootton.—The windows have been produced by a process called *Decalcomanie*. A book descriptive of this art may be obtained by order of any bookseller.

Nil Desperandum.—Sheepskin is the leather usually employed. After being suitably shaped, it is covered with two coats of parchment size, with the palm of the hand; then silver-leaf is applied by the aid of a fox-tail. This is covered with gold varnish, spread by the fingers, and smoothed with the palm of the hand. The gold varnish is made of 2½ lbs. of yellow resin; sandarach, 2½ lbs.; aloes, 1 lb. These ingredients are pounded in a mortar, and melted in an earthen pot over a slow fire, and 12 lbs. of linseed oil stirred in, and the mixture boiled until it becomes of a syrupy consistence.

S. Flowers.—The following is a good method of brouzing tin castings:—When clean, wash them with a solution of one part each of sulphate of copper and sulphate of iron in twenty parts of water; dry and wash again with distilled vinegar eleven parts, and verdigris four parts. When dry, polish with colcothar.

J. Andrews.—Japanese matches are made of thin China paper, which serves as an envelope to a small quantity of a black powder which, when ignited, throws off a beautiful coruscation of sparks, not unlike, on a small scale, the combustion of iron wire in oxygen gas. The composition of the powder is finely-powdered wood charcoal, 1 oz.; sulphur, 1¾ oz.; saltpetre, 3¼ oz. The thinnest kind of paper is necessary, for if writing-paper be employed no sparks are given off. The match contains six grains of the composition; it is held in the hand and lighted at one end. A red globule of saline matter is formed, which projects very small leaf-like sparks, forming an extremely pretty firework.

Romer.—What is called *China grass* is a species of white nettle, which grows abundantly in China and Japan. It is proposed as a substitute for cotton. Articles manufactured of this material possess many valuable qualities, which will doubtless lead to its extensive manufacture and general use. Fabrics of China grass are largely exported from China to the Americas.

Linwood, W.—Drying linseed oil by exposure to the air absorbs oxygen, and becomes converted into a solid resin; hence, of itself, it forms a varnish—varnishes being, in fact, various kinds of resins dissolved in suitable vehicles, such as spirits of wine, linseed oil, &c.

Anderson, T.—The Aneroid barometer is a very delicate instrument, and may be relied on as implicitly as the Syphon barometer. It has lately been much improved by M. Breguet.

West, S.—There are three varieties of phosphorus, the white, the yellow, and the black. Its colour is supposed to depend on its degree of purity, and the mode in which it is cooled after being melted.

A. Y. Z.—Paraffine is a solid substance resembling spermaceti, and made into candles. Paraffine oil is liquid.

Baker and Baker's True UNCOLOURED TEAS are imported and sold Free from all Adulteration; they can, therefore, be relied on for Uniform Good Quality, Fine Flavour, and Lasting Strength. Sold by Chemists, Confectioners, &c., in most Towns. [1

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Patents for Inventions.—Messrs. DAVIES and HUNT procure British and Foreign Patents for Inventions and Registrations of Designs, at moderate charges. Full particulars given in their "Handbook for Inventors," to be had (gratis) from No. 1, Serle Street, Lincoln's Inn, London, W.C. [16

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Workmen's Wages.—LAXTON'S TABLES, to enable Workmen at a glance to calculate their own Wages. Masters' Edition, cloth and gilt, 2s. 6d. (32 stamps); Workmen's Edition, folded for the pocket, 1s. (13 stamps). 34, Arundel Street, Strand. [18

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Working Men's Club and INSTITUTE UNION.—President, Right Hon. Lord Brougham. The continually-increasing extent of the operations of this Society, which has been of essential benefit to many thousands of Working Men and their Homes, renders a proportionate increase of its funds urgently necessary. The Council, therefore, confidently APPEAL to the Public to grant increased support to this truly useful movement. Contributions may be sent to the Treasurer, Henry Hoare, Esq., Jun. (Messrs. Hoare and Co., Fleet Street), or to the office, 150, Strand, where full information may be obtained. HENRY SOLLY, Secretary.

Paris Exhibition, 1867.—All demands for SPACE from intending Exhibitors must be sent, marked "Paris Exhibition," to the Secretary, Science and Art Department, South Kensington Museum, London, W., on or before 28th February, when the lists will be made up.

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Honourable Mention, Great Exhibition, 1851; *Honourable Mention*, 1853, *New York*.

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Feb. 8, 1866. AUG. DE MORGAN, Dean of the Faculty of Arts; CHAS. C. ATKINSON, Secretary to the Council.

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Public Examination in ELEMENTARY DRAWING of the SECOND GRADE at SOUTH KENSINGTON.—PUBLIC EXAMINATIONS in DRAWING, conducted by the Science and Art Department, will be held on the 12th, 13th, and 14th of March, 1866. Candidates must assemble at 6.30 p.m. or 8 p.m., and the papers will be given out as follows:—

March 12—Freehand Drawing, 7 p.m.; Geometry, 8.30 p.m.
March 13—Model Drawing, 7 p.m.; Perspective, 8.30 p.m.
March 14—Mechanical Drawing, 7 p.m.

The examinations will be of the second grade only, and will be open to male and female candidates above twelve years of age, who are not attending elementary day schools for the poor.

Persons who wish to be examined must apply, before March 3, to the Secretary of the Science and Art Department, South Kensington, stating their names and addresses, and the subjects in which they are prepared to be examined. Masters of private schools wishing to have several of their scholars examined, are required to furnish the number who will present themselves for examination in any of the above subjects of the second grade.

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Alliance Assurance Company. Head Office, 1, Bartholomew Lane, Bank.

Subscribed capital	£5,000,000
Paid-up capital	550,000
Invested funds, upwards of	1,500,000
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Notice.—The renewal receipts for the Christmas quarter are now in course of payment.

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Builders, Carpenters, and others, have submitted to their notice these very reduced prices, the lowest consistent with really useful qualities.

¾-inch Flooring (well prepared)	11s. 6d. per square.
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Coal.—Rickett, Smith, and CO.'S Selected Coal, 23s.; Best Wallsend, 21s.; B. S. and Co.'s Silkstone, 22s.; Old Silkstone, 21s.; Derby Bright, 19s.; Barnsley, 19s.; Hartley's, 18s.; Steam, 18s.; Nuts, 15s.; Small, 13s.; Coke, 15s per Chaldron, Cash.—Great Northern Railway, King's Cross; and Great Eastern Railway, Bishopsgate.

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City of London Working CLASSES' INDUSTRIAL EXHIBITION.

INAUGURATION 6TH MARCH.

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BENEDICT AND GRAND CHOIR.

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Fry's Homœopathic Cocoa, in Packets.—The purity, delicacy of flavour, and nutritious properties of this Cocoa, as well as the great facility with which it is made, have rendered it a standard article of general consumption. It is highly approved and strongly recommended by medical men, and is equally adapted for invalids and general consumers.—J. S. FRY and SONS, Bristol and London, are the only English Manufacturers of Cocoa who obtained the Prize Medal, 1862.

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National Institution for DISEASES OF THE SKIN, 10, Mitre Street, Aldgate. Physician, Dr. Barr Meadows, 8, Hinde Street, W. Open on Monday and Thursday Evenings from Five till Eight, and on Wednesday and Saturday Evenings from Seven till Nine. Free letters are available for necessitous applicants. THOMAS ROBINSON, *Hon. Sec.* [27

Hyam and Co.'s Garments and PRICES.—The new Prince of Wales and Prince Alfred Overcoats and Capes, 15s. 6d. to 42s.; Knickerbocker, Eton, Harrow, and Osborne Suits, 15s. 6d. to 45s.; Jackets, 8s. 6d. to 25s.; Trousers, 8s. 6d. to 15s. 6d.; Vests, 4s. 6d. to 7s. 6d.; Jackets and Vests alike, 15s. 6d. to 27s. 6d.

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THE WORKSHOPS OF THE WORLD.

FILE-MAKING AT SHEFFIELD.

Files and File-making.

THE dispute in the Sheffield file trade has had the effect of directing public attention to a numerous and industrious class of workers, to whose labours we owe the production of one of the most useful tools with which we are acquainted in modern times. It is not our purpose here to go into the origin and history of the file, interesting as the subject undoubtedly is, but to describe the various processes of its manufacture. The common file, as every workman knows, is an implement the flat or curved surfaces of which are notched or serrated in such a manner, that on being rubbed on the wood, ivory, metal, or other hard substance for which the tool is intended, a surface of more or less smoothness is obtained.

Files are made of bars of steel prepared in a peculiar manner, it being necessary that the file should be formed of the hardest possible metal, or its working surface would be speedily worn away. The steel is therefore rendered harder than usual by means of a process known as *double conversion*, the metal thus prepared being said to be *doubly converted*. Small files are generally made of cast steel, which is for this

purpose preferred to forged steel, on account of its fineness and quality. The larger kind of files are forged from bars of steel, which have been beaten into the requisite shape by means of the tilt-hammer. In some places, we believe, the steam-hammer is being used for this purpose. The largest kind of files, rather formidable looking tools, are forged from the bar steel without the latter undergoing the preliminary process of tilt-hammering. The files are then shaped—the square and flat ones by means of a common anvil and hammer; those of a circular, half round, or triangular form, by means of bosses or dies, made of the corresponding shapes, and fitting into grooves made for them in the anvil.

The surface of the file thus prepared is perfectly smooth, but it has to undergo another process—that of *softening*—before it can be serrated or *toothed*. This softening, or "lightening," as it is technically called, is effected by placing a number of *blanks*, as the uncut files are termed, in a large brick oven, made perfectly air-tight, to prevent the steel from becoming oxidised. The fire is made to play round the oven until the "blanks" are perfectly red hot, when the heat is relaxed, and the oven gradually allowed to cool. On the perfection of this process depends much of the value of the file, and the labour of the worker. If the metal be too soft, the indentions may be too heavy and irregular; if it be too hard, the workman will find much of his labour fruitlessly expended. After being softened, the "blanks" are carefully ground and smoothened down to the requisite shape, after which they are passed to the file-cutters.

File-cutting is a curious and interesting process. The cutting-rooms are generally long, low apartments, with as many windows as possible, it being essential that the workmen should have plenty of light, so as to immediately detect or prevent any flaw in the cutting. The work-benches are placed along the wall, just below the windows, each file cutter sitting upon a stool, or astride a saddle-shaped seat, immediately in front of the bench. Before each workman is a small anvil, fastened to the bench in such a way that it can be instantly removed if required. The cutter ties one of the blank files upon the anvil, securing it from slipping by means of a strap which passes over the ends of the file, and is held tightly in its place by the weight of his foot. He then takes a peculiarly shaped hammer and a short chisel, rather broad in appearance, having a carefully ground edge, and formed of extremely hard steel. If the file to be cut be a common flat one, with broad indentations, the workman's task is a comparatively light one; but if it be one of the finer kind, a wonderful degree of delicate accuracy is expected of him. If we take a common file, we shall find it covered cross-wise with a series of well-formed and strongly-defined indentations running parallel to each other. These are the result of the special training of the file cutter. No unpractised hand, even if assisted with every mechanical appliance, could compete with the productions of the regular workman, whose keen and experienced eye and his steady hand are his sole guides in determining the relative distance of each groove or cut. Indeed, according to a writer upon this subject, "so minute are these cuts in some kinds of files, that in one specimen about ten inches long, flat on one side and round on the other, there are more than 20,000 cuts, each made with a separate blow of the hammer, and the cutting-tool being shifted after each blow!" Such a file may be bought for a few pence, the purchaser never dreaming of the vast amount of patient toil necessitated by its manufacture, before it could enter the market.

The process of cutting varies somewhat with the shape of the file. If it be a flat one, the task of cutting is, as before stated, comparatively simple and easy. If it be a half-round one, the cutter still uses a straight-edged chisel, but has to make three or four cuts before a complete cross-groove can be obtained. Chisels with semi-circular edges are used for cutting some varieties of round files, but even with these the straight-edged chisel is frequently used. Various attempts have been made for the purpose of substituting mechanical labour for that of the artisan, and it is stated that in America these efforts have proved successful. But this is stoutly denied by the workmen, who strenuously insist that file-cutting is a process which cannot be properly performed by any kind of machinery, however ingenious or skilfully devised. They state that machine-made files are, and always must be, inferior to hand-made files, and for the following reason. If one portion of the file be in any degree softer or harder than the other parts, the uniformity of groove, which constitutes the principal value of a good file, could not be maintained. The chisel would sink unequally into the metal, and thus render the file worthless. It is only fair to add that the advocates of machine-cut files deny these allegations, and profess to have overcome the difficulties complained of.

After being cut, the files have to be restored to their original state of hardness. There are various ways of effecting this, each manufacturer having his own particular method. The process commonly adopted consists in covering the files with a kind of temporary varnish, or composition, to prevent oxidation and scalding of the steel when heated. The files are then heated uniformly throughout in a stove, from which, when they have reached the proper temperature, they are quickly withdrawn and suddenly plunged into a bath of cold water. The effect of this, properly performed, is to give them an extraordinary degree of hardness.

The concluding operations are very simple. The files are scoured, for the purpose of removing the varnish, then carefully washed and dried, and finally tested; after which, they are wrapped in stout brown paper and passed into the warehouse, ready to be dispatched to any part of the habitable world. In this country, the chief seat of the file manufacture is at Sheffield.

In the Dark.

A CARPENTER'S STORY.

I wouldn't have been Robinson Crusoe, not for five hundred a year and no slack. It's all werry well being your own foreman and master, and so on, but then such a life to my mind's like a well-flagged deal board just made ready for flooring. You've been over it, and touched it well down with your jack plane, and finished off with your trying-plane, and there it is—or ought to be if it aint—scamped just like a bit o' satin, every knot just like a smooth brown eye, and every bit o' grain standing out as if polished; but then turn it over, and it's all as rough, and shaggy, and splintery as can be. It's all werry well being master and gauger, but then you has to be journeyman and labourer into the bargain. But that aint it so much, for I wouldn't give a clout nail, let alone tuppence, for a feller as can't turn his hand to anything in a push; it's the loneseomeness of the thing.

I expect it's not liking to be alone made me get married; and I must say that now there's an old bird at home, and five little ones in the nest, I aint werry lonesome there. How they do open their precious young beaks, and what a sight o' stuff it does take afore you can persuade 'em to shut again! But I aint grumbling about that, mind, and I hope I never shall. However, as I said afore, I don't like being alone, for it puts me in mind of a werry lonely time; but I do like having a mate come in for an hour's chat, and join me over a pipe and a pint of half-and-half in a quiet sociable manner, same as you have to-night, Dick Smith.

That's a good trying-plane o' yours—the one you had in the shop to-day—but I never did see, and don't suppose I ever shall see, such a tool as one I lost about four years ago—leastways I didn't lose it, for I sold it; but it was a loss for all that. Fine sound bit o' beech as ever you saw; while as to the iron, there was never a better bar o' stuff came out o' Sheffield. Just show it the ile-stand now and then, and knock it up to the right set, and then—whish! whish!—the shavings would seem to run off a board as fine, and thin, and soft as—as—well as shavings, you know.

I sold that plane for two shillings, and the next week I'd have given five to get it back, but was gone again, and I've never set eyes on it since. You see, nothing looks worse than for a man to be parting with his tools; and when you see a fellow doing of it, he's either one as isn't worth his salt, or else he's werry hard drove.

Now, I suppose I do make my salt, mostlings, or else I shouldn't have been two years in this shop; but about the time I told you of, I was going to part with one o' my tools, so you may suppose that I was hard drove. It don't matter where it was, but it worn't a hundred miles from Gray's Inn Lane; and, after being out six weeks, I was took on, and got my order to be off with a lot more down into Surrey, where there was a cottage army, as they calls it, a-building.

I slips off out o' the yard, ready to bust with the good news, and I was at the bottom o' the lane and across Holborn in no time; and in less than that I was down our court where we lodged, and up two pair o' stairs, and into the room before my wife had time to hide what she was doing of.

"Hooray, mother," I says, "took on!" and then I stops short; for though I would not let her think I knew she had been having a good cry, it all at once struck me that I should be setting her off again; for I'd engaged to go down into the country for a month certain, and I should have to leave her behind—so I stops short.

"Oh, father!" she says, "I am thankful; for I don't know what could have gone next."

We had, somehow, then got into the way o' callin' ourselves "Mother" and "Father;" and so she said she didn't know what could have gone next; and I'm sure I couldn't have told her, for a many of our things had gone about that time; for what with no work, and a long spell or two o' sickness, we had to make a good many visits to a certain relative, as I'm sure every honest, hard-working man hates the werry name of.

And now I aint speaking fair, for I said *we* had to make a good many visits; but it warn't *we*, for I'm blest if I wasn't such a coward myself that I daren't go, but stopped sneaking at home, and let the wife go instead, which worn't at all manly, says you; no more it worn't.

Howsomever, when she said that, I knew that something must go; and I felt so light-hearted with the idea o' that work that I made up my mind to go myself, and wrapping my old favourite plane up in a red handkercher, I slips out into Fetter Lane, where our uncle lived. Off I goes, full swing, as if it was all right, and with my mind made up to run right in, pawn the plane, and then let the missus have the money, and make shift till I could send her some more; and then what with thinking about having to tell her I was going into the country, and about how soon the foreman would let me draw something on account, if I didn't shoot right past the shop.

"Don't turn back yet," I says to myself, "or people will think there's something wrong." So I walks right on, and gets into Farringdon Market, and makes a bit of a twist, and comes back again, meaning not to miss it this time.

There it was—three golden balls hung out, and a window full of everything one could find a name for; working men's tools and watches, silk handkerchers and silver spoons, flutes, and fiddles without any strings, pistols and telescopes—the one to make a hole in you, and t'other to look at it with—glass decanters and tooth-drawers, pincers, rings, and chains, and ear-rings, and musical boxes, and composing-sticks; but there wasn't neither a smoothing, nor a rebate, nor a moulding, nor a jack, nor a trying plane in the whole window; and I cut by as hard as ever I could, and, "Tom Scott," I says, "you're a fool! You've come to the wrong shop!"

All at once I pulled up, and pretends to be looking in at the fishing-tackle shop, and stood there a-talking, as it were, to an old stuffed Jack that was a-staring at me with his yellow eyes, and his mouth wide open and full of hooky teeth, that would let anything go in, but precious little come out again; and then, somehow or another, it seemed to me as that great stuffed jack, or pike, or whatever you call it, was a sorter imitation o' that precious relation as I came out on purpose to see.

"Ah!" says I, "and we poor chaps is the gudgeon as he lives on. And a precious gudgeon you are, Tom Scott—six feet high, fourteen stone weight, and humbugging yourself, and pretending all sorts o' gammon, because you ain't got enough stuff in you to go in like a man to pawn that plane. Tom," I says, "I'm ashamed of you! Take it home again, and ask the missus to do it for you, and don't be a humbug and say you got to the wrong shop."

And so I gave it him—that's me, you know—hot and strong for about five minutes, and then I felt better.

"Don't be a donkey," I says; and then I hugs the plane up tight, and walks on; but I'm blessed if everybody didn't seem to know where I was again', and kep' staring at the red handkercher, when they wouldn't have took a bit o'

notice if I had carried the plane in my hand, open like.

"Now for it," I says; for I'd made my mind quite up, and meant business, when I meets a policeman, and he looks at me, and I looks at him; and I don't know how a chap feels that has stolen a plane, but if he feels half as bad as I did that afternoon, why, the sooner he turns honest, and earns the tool instead, the better for him.

I knew I was a fool to mind, and kep' telling myself so; but it wasn't no use, bless you, for before I'd got a dozen yards past the policeman, if I didn't turn round to look, and, as a matter of course, there was he turned round too, and staring at me. Talk about a look! why, his eyes went through me like mortice chisels in a door jamb!

I turns round again, and scuffles on, meaning to rush into the shop. "Now for it," I says again; and I believe I should have done it, if a chap hadn't have come out at the same moment, with his hand in his pocket chinking some money, and we nearly ran against one another, and started back, for he knowed me by sight, and I knowed him, through having worked a few benches off one another up at Cubitt's.

We just nods, and he was gone like a shot; for he knowed I could tell what he'd been in there for, while, of course, I put it to you, now, I couldn't go in then, could I? On I goes ever so far up the lane, and then back once more, and this time, although I knowed everybody was looking at me, I blunders right into the shop, slips off the handkercher, and bangs the plane down on the counter.

"Lend me five shillings on this for a week," I says; and two or three people in cupboards like reaches round to see who made such a noise; but as there was four or five more people in the place, nobody takes any more notice o' me, and there I stands, hot and savage, till a skinny little chap with a penholder across his mouth, like a bit, because he was vicious, comes up and turns my old plane over, and then he mumbles as well as he could for the pen—

"How much?"

"Twelve and six," I says; for I thought he meant what did I give for the plane.

He gives it a push and shakes his head, and I was just going to speak, when I feels a hand on my shoulder, and looking round, there was the policeman I met, and he says—

"Where did you get it from, my man?"

"Bought it," says I, in a regular flurry.

"Where?" says he.

"Charing Cross," I says; and, to make a long story short, I had to let him walk back to my lodging with me, and see my basket of tools, and then he only seemed half satisfied; while half an hour after I roused up and went out, quite savage, swinging the plane in my hand, and sold it at a marine store shop for two shillings.

It was hard work to comfort the wife when she knew that she was going to be left alone; for "Oh, Tom," she says, "the poverty's hard enough to bear without having to be separated." But I promised her that I'd take a lodging, and get her down with me as soon as I found the work likely to last; but next morning at breakfast I saw more than one tear drip into her teacup.

But it was a bright morning, and I'd been doing all I could to cheer her up; for I wasn't going to start till nine; so I gave young Tom a treat—washed his head for him, and rubbed on the soap till his little nob was all white.

"Now sloosh, faryer," he says; and I sloosh'd him, and never got the soap once in his eyes, nor yet up his nose, which wasn't surprising, seeing what a little chap he was then, and no nose at all to speak of.

Well, at last I had my tool-basket ready, and a hammer through the handles to swing it over my shoulder. There were three clean aprons inside and some odds and ends I should want; and then there was nothing else to do but say good-bye. But, there, I won't tell you about it, for she took on a great deal, as it was the first time I had been away from her.

"You will write, Tom?" says she.

"Why, of course," I says.

"And I've put four sheets and some envelopes in," she says, "so that you needn't write on the back of the sandpaper with your pencil, for it's so hard to make out."

And then, after five minutes' silence, I bolted out, and wouldn't look behind till I was out of the court.

Why, of course I was sorry to leave her behind; and I went along with my heart feeling as heavy as a lump of lead, and everybody I met looking dim and weary, which I should think must have been indigestion, or something of that kind; but it soon went off, and the clear sunshiny morning seemed to brighten one up, till I felt so hearty and cheery that I was ashamed of myself, for I felt as though I ought to be miserable, like I knew the wife was at home. But there we were, several of us, along with carts full of scaffold-poles and material, and before long we were out in the open country.

Out in the open country—God bless it!—with the birds twittering in the trees and hedges; the blue sky overhead, with now and then a light cloud slowly sailing across; the soft wind smelling that delicious, that we opened our mouths and drew in great long breaths, as though we should never be tired. There were flowers everywhere—lilac, laburnum, and may; orchards full of pinky apple blossom; while as to the green of the fields in the golden sunshine, ah! it was a sight to men who had been cooped up in close London courts, without knowing where the next day's bread was to come from!

Out in the open country, with fresh beauties at every turn! Why, we were like so many boys, running by the carts, larking, shouting, and making regular fools of ourselves, which must, of course, have been owing to the light, free air. I've heerd talk of prisoners, and sick men, and their delight at being out once more; but they could not have felt happier than we did, out in the open country, on that bright May day.

Every now and then, though, something dull would keep coming over me, and I wasn't sorry when it did; for what business had I to be so happy and cheerful, knowing how miserable I had left some one at home? But so it was; and the bit o' blackness wore off, and I was as lively as the best of them five minutes after, for, mind you, it isn't money as can give the real gladness of heart.

Well, we got down to the place, and the work went on merrily. The foreman was a good fellow, and made me one or two little advances; and as there seemed to me to be work for a good three or four months, I began to look out for a little place where I could bring some one down to; and a comfortable lodging I soon found, made all my little arrangements, and sent a letter up with a post-office order inside, so that some one and the two little ones could come down comfortable next day but one.

Every one, I dare say, has his own fancies; and I don't mind telling you one o' mine. I don't know any one thing so satisfactory as driving a nail home. You make a small hole with your bradawl; in goes your nail; and then, tapping gently at first, you go on by degrees, until the head gets nearer and nearer, and at last is driven right into the soft deal board.

Not much in it! says you. Perhaps not to your way of thinking; but every man to his trade, and, you may depend upon it, in every trade there's a similar feeling. I've seen blacksmiths laugh as they pegged away at their iron; the old cobblers grin as they drew the wax-end tight; the painters wag their heads as they laid on the flatting; and something o' the same kind in most trades; and it's only reasonable that it should be so, for a fellow would not be much of a workman if he didn't love his craft.

Well, I was busy driving the nails in a piece o' boarding, thinking all the time about the missus coming down, when I makes a false stroke, hit the nail o' one side, and it flew up and caught me right in the eye.

Talk about agony! No one knows what I suffered, for in a short time the inflammation spread from one eye to the other, and I was quite blind, so that I had to be led home to my lodging. Perhaps you know what a bit o' dust, or a lash, or anything o' that kind is in your eye; you know the pain and worrying it gives you; so you can think what I suffered—a great, tall, stout fellow—as I lay turning about, with the sweat dropping off me.

Doctor came, and did all he could. Next day came, and the pain seemed easier. Next day after that came, and a letter saying my wife would not be there for another day, and some one had to read it to me, for everything was black as night; and at last, worn out with pain and lonesomeness, and the horrid fear that I was to be a blind, helpless man, I turned over upon my face, and stopped there till the pillow was quite wet.

Yes, I know it was the act of a child; but I felt one then, as I thought of the bright light of God's sunshine gone from me for ever; that I should gaze no more upon the loving face of my own wife, and that the merry, bright eyes of my little ones would sparkle for me no more. That I should henceforth grope about in the dark, seeking, like that sorcerer in the Testament, for some one to lead me by the hand. That I, the great man of bone and muscle, should be in a moment stricken down helpless, to be henceforth a burden to my poor wife, and we—poor people.

It was the act of a child, I know; for, with an exceeding bitter cry, I lay there and sobbed miserably, while every tear smarted and burned like melted lead running over my eyeballs. Oh, yes, it was the act of a child, and I knew that I was now as helpless as the weakest. How I lay and thought of poor blind Samson, and pitied him! How I called to mind those with sightless eyeballs whom I had often passed by uncaringly; and how I thought and thought what could I do for my bread in the long, long night that now seemed my future.

"In the dark! in the dark!" I kept on groaning to myself as I lay; and then I thought of the past time, and of how great a blessing I had thoughtlessly enjoyed; and then the thought came to me of other blessings which never seemed blessings before, for being mostlings short o' money, I always thought myself hard used, and growled more than I need have done. And at last of all thinking and suffering, my head seemed to get hot, and I turned delirious—half mad, you know—and went on terribly, I suppose, till two days after, when I seemed to wake up in the dark, and lay still, thinking and wondering where I was, till I heard a noise as of some one moaning, and I calls out, "Who's there?" I knew who it was directly, for I just heard the one word "Tom" sobbed out, and then there was an arm under my head, and tears falling upon my poor sightless face, and such tender, hopeful words whispering to me, as made my heart swell and beat; and I felt that, come what might—come sickness, come sorrow, blind, or able to see—I had some one to lean on, and to lead me by the hand.

We were werry quiet then, and I lay on my side trying to look through the black darkness at that dear old face that I could feel close by me, as some one kneeled down by the bed-side; but, no, I could not see it with my eyes, though I could with my heart. And then she stopped sobbing, and talked of hoping for the best, and of how the eyes of the blind had been opened, and that perhaps my affliction might, by His help, yet be removed. And so we talked and talked, and she said that we would sorrow no more about it, and then how much she could get by needlework, and all on so hopefully, that I seemed to brighten up; but only for a few moments, for I knew what a dead, helpless burden I should be. And then she must have seen my face working, and, poor lass, she broke down herself, when I said she had better have been left a widder.

At last, in the quiet o' that little room, not a sound to be heard but the twittering o' the birds outside the window, I said, in better hope, some words with her, as she knelt by me, but we got no further than "Thy will be done."

* * * * *

Dick Smith, I never knowed how much love, and tenderness, and gentleness there was in this world until I groped about it in the dark. I'd been bitter, as many a disappointed working man, and railed at my betters; but now, in the midst of my trouble, I learnt that I had walked all my life in the dark, stumbling about, and not seeing the blessings that were spread around me. We never knew want during that dark month which we spent in that pleasant country place, where my wife led me about amongst the sweet spring flowers, while everybody had a kind and loving word for me. The governor allowed me half wages, and somebody did needlework, and they used to pay her double and treble, and send me all sorts o' things, so that we were well off. Then the doctor came every day, and told me I wasn't to fret about it, for he hoped I should get my sight yet.

One day I sat trembling in my chair, with the doctor operating—not trembling at the pain, but for fear he might have been deceived; somebody stood there, too, holding my hands, for she had got leave to be present. All at once there was a

bright flash of light, and then I felt my head swim and I fainted dead away, for I could not stand up against the swelling joy that burst upon me.

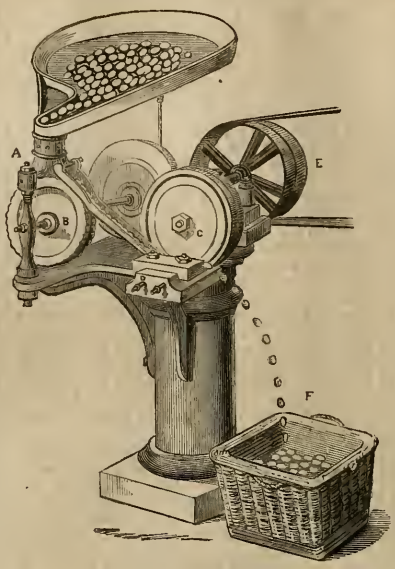
* * * * *

As keen a pair of eyes, as ready a pair of hands, and as willing and hopeful a heart as I hope are to be found in any workshop in England, Dick Smith; and I'm a humble and thankful man for it. But, Lord bless you, I has my fits of ill temper when things goes three cornered; and then Patty comes and whispers—God save her—in my ear, when the sun shines again, and I think of old times before my accident, and say to her—

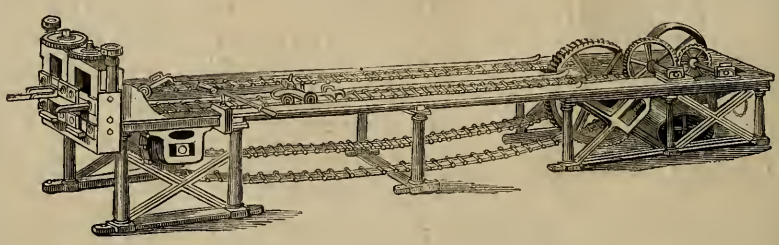
"Eyes shut, Patty. I was in the dark!"

*Coin from the Crucible to the Press.**

A more satisfactory idea of the ingenious mode of equalising the thickness of strips of the precious metals, which we described in our last paper, will be gained from the accompanying illustration of the draw-bench. It may be well, also, to explain that the strips themselves, after having been adjusted, are cut by hand-shears, mounted conveniently for the purpose on the draw-bench itself, into short lengths of about two feet each, so as to be more portable and more convenient for the cutting-out operatives to handle. It may be observed also that the draw-bench is not employed in dealing with bronze. Slight variations in the thickness of pence, halfpence, or farthings are obviously of little moment, and the rolling mills are found to do all that is necessary in the shape of adjustment, so far as fillets of that metal are concerned. Multiple cutting machines, each punching out three or more blanks at a stroke, have lately been introduced for expediting the production of blanks for conversion into the subsidiary coins just named; those machines are, however, inapplicable for gold or silver moneys.



MARKING MACHINE.



THE DRAW-BENCH.

We may now accompany a truck-load of the prepared ribands of gold into the next apartment, which is known as the cutting-press room. This is a handsome apartment of circular form, and it is surmounted by an iron roof of light and elegant construction. It contains twelve punching-presses, each independent of the other, and capable of separate and individual adjustment, so that blank pieces of various sizes may be produced simultaneously. The presses are arranged in a circle, on an iron platform at a convenient height above the stone floor of the room, space being left between the platform and the outer walls for the passage of workpeople and trucks. An upright shaft, supporting a heavy and large fly-wheel, the latter so placed as to run horizontally above the whole of the presses, occupies the centre of the circle. The fly-wheel has a series of twelve cams, or irregular projections, attached to its arms, and it travels slowly round, making, in fact, twenty-four revolutions per minute. Each press-screw has a lever fixed upon it, and this is alternately caught and released by the passing cams. Rods of iron are also attached to the levers. The rods stretch across the apartment, and pass through holes in the wall of the room into a series of small rooms or cells, in which are as many vacuum pumps as there are presses, and to the pistons of these latter the rods are connected. It will now be comprehended that, while the passing cams strike the press levers and raise the central screws of the presses, the pistons, acted upon by atmospheric pressure, pull the screws down again in quick and noisy succession.

THE COINING-PRESS ROOM.

Thus an alternate upward and downward movement of the press-screws is attained—their extent of travel being about an inch in each case. The presses themselves consist of cast-iron frames, with brass boxes or nuts in their centres for the passage through them of the main screws. To the lower end of each screw, and just above the level of the platform, the steel punches are fixed, so that they also rise and fall the distance just named, and as they descend they pass through as many steel cups, with sharp cutting inner edges, and of the exact size of the punches. Below the cups are holes leading to drawers recessed into the platform, and so arranged as to catch whatever may fall into them. It is hoped that this description of the punching machinery may lead to a more exact idea of the punching process; and now we may return to the adjusted gold fillets, which have been distributed among the cutting-boys, one of whom attends each press. The signal for commencing operations being given, the boys, seated in front of their presses, commence feeding them with gold, and by a neat arrangement of pedals and lines, each has the power of stopping and starting his press by simply exerting or relaxing the pressure of one foot on the pedal below his three-legged stool. Taking a single strip of gold, and placing its end on the cutting-out cup, one of these youthful press-feeders now starts his press, and, as his movements are copied by all his companions, it may be well to observe him closely. The punch, first raised by the fly-wheel cam, is drawn down with a sharp thud by the vacuum pump, and passes through the gold, displacing from it a blank, or disc, of the size of a sovereign, and which falls at once into the receiving drawer. Before the punch again descends, the dexterous youth pushes forward the fillet, and another disc is cut. Repeating the operation, another, and another fall into the drawer, the operator taking care to shift his strip of gold just far enough each time he moves it to bring an uncut surface beneath the punch. In a surprisingly short space of time the fillets are thus perforated from end to end, the receivers below being as speedily filled with what resemble, at this stage, shankless and rather dull-looking brass buttons. The exhausted fillets are laid aside for relegation to the melting-house, whilst supplies of new ones are handed to the cutting-boys. Thus the work of punching goes rapidly, if not musically, on, for each press produces sixty discs per minute, and careful testings of them by weight are constantly made by other attendants, in order to be assured that the punches are performing their duty accurately. It would signify but little that the metal had been adjusted exactly in thickness, if blanks were not cut of a uniform diameter. In fact, if they vary in weight more than half a grain from each other they will be useless as coin, and will not be suffered to pass out of the Mint at all. Great skill is therefore requisite in turning the punches and boring the cups, in order to prevent diversity of size in the resulting blanks.

When all the fillets have been thoroughly riddled, they are bound up for re-melting, and at this point are technically called "scissell" (from the Latin word *scindo*, to cut), as, indeed, is all kinds of

* Continued from page 140.

scrap metal in the coining department. A balance of good work and scissell is struck by the officers in charge, and the blanks are sent forward to undergo another ordeal, known as "marking." This is simply a raising of the edge or circumference of each piece, so as to prepare it for the reception, under the press, of the protecting rim, which, by-and-bye, will preserve the devices ornamenting it from defacement. This process is performed in a very beautiful, yet simple mechanical contrivance, of which we give an illustration, and which is known as the marking-machine. The blanks are seen in their various stages of progress. The workman deposits a batch of them on the surface of an inclined dish or hopper, to the lower part of which they fall by their own gravity into a tube, A, and rest upon the edge of a wheel, B, with serrations or notches upon its circumference, and which revolves under the tube. Each notch of this wheel, as it moves round, carries forward a blank, and, in exact order, they (the blanks) find their way down a smooth brass conducting-slide to the lower part of the steel disc, C, which turns rapidly on its axis, and has a groove sunk to a slight depth in its front or face. To this groove the pieces are unerringly conveyed by the conductor, and immediately *vis-à-vis* is a corresponding groove, sunk into a piece of steel, which again is fixed firmly by set screws, shown at D. This outer grooved "check" may be adjusted at any distance from the face of the revolving-disc, in accordance with the size of the blank coins to be dealt with. In this case we are treating of sovereign blanks, and the space between the two grooves is slightly less than the diameter of a finished coin of this description.

The well-known arrangement of a fast and loose pulley (seen at E) serves for starting and stopping the machine. Supposing it now to be in motion, the grooved disc will be driven in the direction from right to left as one faces the machine. The gold blanks being caught by it, are made to rotate two or three times; they are squeezed between the two grooves, and in a continuous stream, so long as the supply lasts, they are thrown forward into the basket, F, placed to contain them. On examination now we shall find that their edges have been compressed, and that thus rims have been raised on both sides of each piece, standing out beyond the plain surfaces. The marking process, too, smooths away the sharp edges which the punches have left on their circumferences, and leaves them round and sightly. At the rate of 600 per minute, blank coins, of whatever denomination, are thus "marked" at a single machine of this kind at the Royal Mint.

It will be remembered, that in the rolling-room the strips of gold were once annealed, but that afterwards they underwent a renewed series of laminations. This, and the subsequent action of the draw-bench upon the metal, hardened it again by the sheer force of compression; consequently, the blank coins cut from the strips are of the same character. To attempt to imprint devices upon them under these circumstances would be folly. They have, therefore, to be annealed, in order to make them yielding, instead of being, as they now are, obstinate and unimpressionable.

(To be continued.)

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

It is a matter of great importance in the employment of human labour to make as much of its effect as is possible to be "useful" work—that is, work for which the employer ought to pay; and for this reason, if for no higher ones, it is important to lodge and feed the labourers as near the scene of their daily toil as possible, and to give them every facility that the ingenuity of mechanical contrivances can afford, to perform their work without unnecessary movements of the body to and fro.

The necessities of the landlord often require him to compel the labourers to reside at a distance from their work; but he really gains little from his narrow selfishness; for since the labourer's body, in obedience to physiological laws, can give out only a limited amount of work each day, whatever work is expended in walking to and from the place of labour is deducted from the "useful" work, of which the profits pass into the landlord's pocket.

No class of labourers suffer more, according to my experience, from this ignorance of the laws of nature in their employers, than miners of metallic ores, who are frequently obliged to climb, down and up, ladders of 200 to 300 fathoms in height, in addition to their daily work, which is diminished by the exact amount expended in mounting and descending the ladders.

Assuming, as I shall hereafter prove to be the case, that 400 ft.-tons per day is a large estimate for the available work given out by a labourer in his daily work, it is easy to calculate how much his employer loses by forcing him to descend and mount 250 fathoms of ladders each day. Multiplying 250 fathoms by 6, in order to reduce them to feet, we find 1,500 ft., which, being multiplied by 150 lb. —the weight of an average labourer —we find the

	ft.-lb.
Work done in mounting the ladders	225,000
Work done in descending the ladders, usually assumed at one-half	112,500
Total	337,500

Dividing this result by 2,240, the number of pounds in one ton, we find the quotient 150 ft.-tons for the daily work expended in carrying the miner down to, and up from, the scene of his daily toil; and from this calculation it follows that $\frac{150}{400} = \frac{15}{40}$ of his available labour is expended in useless work. If the miner were paid daily wages, he would be well worth three guineas a week, or sixty-three shillings, of which $\frac{15}{40}$, or 23s. 7½d., are expended without any return to the employer. In order to counteract this waste of labour, various mechanical contrivances have been devised to lift the miner, without labour on his part, from the depths of the mine. Among the most important of these, may be mentioned the celebrated "man engine" of Frieberg, introduced into Cornwall for the first time in Tresavean mine, and afterwards used in Dolcoath and other mines, to the great relief of the workmen and profit of the shareholders; and the inclined or diagonal shaft, employed in Botallack and United Mines, by means of which the Prince and Princess of Wales, without any effort, were lately lowered 200 fathoms below the sea, and raised again, amid the cheers of the loyal Cornishmen.

The lowest and most degrading type of human labour is that which I have already described, which consists in the effort of the labourer to raise his own weight from the ground; and it is generally assumed by mechanicians that a man so employed could raise his body through a height of one mile per day, corresponding to a daily work done of from 350 ft.-tons to 400 ft.-tons, according as the labourer's weight ranges from 150 lb. to 170 lb.

The next form of work done that I shall consider is, that in which the labourer is employed to raise materials to a height from the ground. The "hodman" employed to carry bricks from the ground to the masons at work on the scaffolding of a building is one of the best types of this old-fashioned description of work. He is represented

* Continued from page 101.

following his dangerous occupation in our first illustration.

According to the estimate of the best French writers, the work done by the hodman is—

Work per minute of raising weights, on the back, on a ladder	1,126 ft.-lb.
Work done per day of 12 hours, half rest and half work	181 ft.-tons.

The foregoing estimate takes account only of the weight lifted, for which the employer has to pay, and, of course, makes no allowance for the waste of labour involved in lifting the man himself up and down the ladder. This waste of force may be calculated as follows:—I have observed that hodmen employed in Dublin can make 40 ascents per day of ladders 40 ft. in height. If we assume the weight of the labourer and his hod to be 170 lb., then—

Work done in mounting = $170 \times 40 \times = 272{,}000$ ft.-lb.	
Work done in descending (or one-half)	136,000 ,,
Total work	408,000 ft.-lb.

Dividing this result by 2,240, the number of pounds in one ton, we find—

$$\text{Work done} = \frac{408000}{2240} = 182 \text{ ft.-tons.}$$

This work is equal to that expended in useful labour, and is entirely wasted, so far as the labourer and employer are concerned.

The total daily work of the hodman is therefore thus divided—

Useful work, lifting bricks	181 ft.-tons.
Wasted work, lifting body	182 ,,
Total	363 ft.-tons.

The hodmen of Dublin, whose labour is thus unskilfully employed, are able to earn only 12s. a week, and that in an occupation so notoriously dangerous, that it is well known to furnish a very large per-centage of the cases of accident admitted into the hospitals of the city.

The foregoing calculation tends, I think, to show that if science were summoned to direct their efforts, these poor men might easily earn 25s. per week instead of 12s., without the additional expenditure of a single ounce of force.

Dr. Young estimates the work done by a labourer employed in raising weights, by means of a rule, which leads to a result not differing materially from that of the French writers. He says*—"The daily work of a labouring man, of middle age, and in good health, will serve as a convenient unit for the comparison of moving powers of all kinds. It may be most easily remembered in this form:—A man can raise a weight of ten pounds to the height of ten feet in a second, and can continue this labour for ten hours a day." This estimate of work gives, per day—

$$\text{Work done in lifting weights} = \frac{10 \times 10 \times 60 \times 60 \times 10}{2240} = 161 \text{ ft.-tons.}$$

a result which agrees substantially with the 181 ft.-tons already deduced from French authorities.

The work thus done is supposed to be a weight lifted by means of a winch or pulley, and it is less than half the work (400 ft.-tons) per day that a healthy labourer scientifically employed ought to produce. The reason of this deficiency is different from that of the hodman. In his case half the day's labour was expended in lifting and lowering his body on the ladder, although nearly all the muscles of the upper and lower limbs were employed; but in the case of Dr. Young's labourer, working at the winch, or pulley, although the man may exert his utmost efforts, yet, as only the upper half of his body has been employed, after a whole day's labour he has only done half a day's work.

In this case, therefore, as in the last, science should be called to his aid, and the loss of 50 per cent. of precious work economised.

There is also another description of labour in which a great loss of force occurs, in consequence of the employment of a portion only of the muscles of the limbs. This labour consists in shovelling materials to a height of 5 ft., and is represented in the second illustration.

It has been ascertained, by careful observations made by Col. Morin and other French authorities, that, assuming the period of labour to be ten hours,

The work done by shovellers ("fillers") is 125 ft.-tons per day.

The error in this description of labour is two-fold:—

Firstly. The muscles of the upper limbs only are employed.

Secondly. The weight of the arms and shovel is lifted at each "cast," as well as the material itself.

Assuming (as I have found by observation) that the centre of gravity of the arms passes through the elbow-joint, and that the arms weigh 16 lbs., and that in a cast of 5 ft. 4 in. the elbow is raised 2 ft., the

Work done in raising the arms is $6 \times 2 = 32$ ft.-lbs.

It is stated on high authority that the shovels weigh 6 lbs., and that their centre of gravity is raised 4 ft. at each cast, from which it follows that the

Work done in raising the shovel is $6 \times 4 = 24$ ft.-lbs.

Six casts of the shovel usually make one cubic foot, which on the average of embankments weighs 90 lbs.; and, as the cast itself is 5 ft. 4 in., we have the

Useful work done in one "cast" $= \frac{90}{6} \times 5\frac{1}{3} = 80$ ft.-lbs.

It follows from this, that for every 80 ft.-lbs. of useful work done, 56 ft.-lbs. (32 + 24) are wasted in lifting the arms and shovel; and, since the total useful work of the day is 125 ft.-tons—

The work wasted per day $= 125 \times \frac{56}{80} = 88$ ft.-tons.

Hence, adding the previous results together, we find—

Useful work	125 ft.-tons.
Wasted work	88 ,,
Total	213 ft.-tons.

Notwithstanding the fatiguing character of this labour, the total work done, whether useful or wasted, falls far below what is obtained in other descriptions of work; and this deficiency can be explained only by the fact that in shovelling a much smaller proportion of the large muscles of the lower limbs is left unemployed than in other and more scientific kinds of work.

The estimate of the daily useful work of shovellers used above, on the authority of Col. Morin, is singularly confirmed by the observations made by Professor Lane, C.E., in the years 1848-49, on the Birmingham and Oxford Junction Railway. These observations are of great value, as they extend over a period embracing all the seasons of the year.

From these observations* it appears that each "filler" loaded $15\frac{3}{4}$ cubic yards of earth per day, that this earth weighed $1\frac{1}{2}$ tons per cubic yard, and was "cast" through a height of $5\frac{1}{2}$ feet. From these data we find—

$$\text{Work done by shovelling} = 15\tfrac{3}{4} \times 1\tfrac{1}{2} \times 5\tfrac{1}{2}$$
$$= \frac{63 \times 3 \times 16}{4 \times 2 \times 3} = 126 \text{ ft.-tons per day.}$$

This result is identical with that found previously by Col. Morin, and shows how utterly unfounded is our national prejudice that "one Englishman is equal to three Frenchmen." It has not been proved to be so, at least in the case of shovellers.

Loss of Life in Towns.†

When any of us are about to visit a strange country, our first care is, generally, to make acquaintance with some of its distinguishing characteristics, and thereby provide a basis of fact, as a nucleus for the observations naturally arising during our travel.

To such of our friends, then—and we hope their number is not few—who have read our introductory remarks on the loss of life in the great centres of the industry, intelligence, and wealth of this country, with the purpose of accompanying us in our subsequent endeavours to popularise a subject too commonly left entirely in the hands of professed statisticians, we offer a few explanatory remarks on certain technical expressions which we shall have frequent occasion to use. For unless the writer and the reader are agreed about their definitions, there can be no satisfactory result on either side.

The necessity for removing any doubt in this respect, is recognised by all who have to do with statistics; and as a case in point, we need only refer to the different systems of notation to be met with in works relating to life assurance, wherein each writer adopts his own plan, to the utter confusion of the student who would fain gather instruction from them all.

Happily our subject presents no such difficulty; its technicalities are reducible to the simplest form of words, and their illustration can be apprehended without special training for that purpose.

The term *death-rate*, or *rate of mortality*, is one which is very commonly misunderstood. It expresses the ratio between three elements—1, persons living; 2, time; and, 3, persons dying—and by losing sight of these compound units, very erroneous ideas are sometimes entertained. Thus, if the population at a given point of time is compared with the deaths in a quarter of a year, or a week, the result cannot possibly give the true rate of mortality. Again, the deaths in a district during a series of years may be doubled or trebled, or they may actually be reduced in number, and yet the *rate* of mortality may be unaffected by these fluctuations.

The *rate* of mortality is determined, then, by the ratio which the deaths bear to the years of life; and a *year of life*, which we adopt as the lifetime unit, represents one person living through a year, or two persons living through half a year; so the persons living multiplied into the *time*, will produce the years of life with which the deaths are comparable. This is, in fact, nothing more than an application of the old rule-of-three principle of reducing the divisor and dividend to the same denomination.

A disregard of this fundamental rule induced a provincial mayor, a short time ago, to challenge the accuracy of an official statement as to the mortality of a certain town. The Registrar-General had quoted the rate of mortality as so much per cent. *per annum*, during the quarter of a year then just expired, and the mayor sought to prove that this was incorrect, by showing that the deaths in that *quarter*, divided by the average population, yielded a mortality rate of only one-fourth of that which had been assigned to the town. This example illustrates the importance of a correct appreciation of the meaning of terms.

The advantage of a uniform basis for comparison needs no proof. In the computation of interest £100 is taken by general custom as the fixed unit, and a year is the most convenient unit where time is an element; so the *annual* rate of mortality is almost invariably employed for comparative purposes. Thus we see that in London the mortality for the week ending February 17th, is given as at the rate of twenty-three deaths per annum to every 1,000 persons living. That is obtained either by multiplying the deaths in that week by 52, or dividing the population by 52, so as to reduce both terms to an equality. The same rule holds good for other intervals of time. If, for example, the population of a town in the middle of 1861 was 50,000, that number represents 50,000 *years of life*; and if the deaths in that *year* were 500, the *annual* rate of mortality was one per cent.; but if the 500 deaths had occurred in six months of that year, then the *annual* rate of mortality during those six months would have been two per cent. Then another very important point to be remembered is, that the population yielding the years of life should agree as nearly as possible with that out of which the deaths occur. For example, the numbers living at the census date of 1861 are known exactly, but they would not represent the population out of which the deaths in that year occurred. Such a ratio would overstate the rate of mortality, as the population naturally increases and would, therefore, be much greater in December than it was in April. The rule generally adopted is to estimate the population to the *middle* of the year for which the mortality rate is required, on the assumption that the rate of increase observable between any two census dates may fairly be taken to rule over the years subsequent to the last enumeration. This, of course, is only an approximation, and may in some cases be quite erroneous, as, for instance, where any special movement of the population takes place in any district or town; but for all practical purposes, such an estimate is sufficiently exact; and, indeed, short of an annual enumeration, there is no safer mode of getting at the numbers living in intermediate years; for the *natural* increase, or the excess of births over deaths, is disturbed by emigration, as well as by immigration, and cannot, therefore, be relied upon.

In estimating the numbers living at any period, it must be remembered also that the population increases by geometrical progression, or by equal proportions in equal periods of time, just in the same manner as money invested at compound interest does; therefore it is not cor-

* "Lectures on Nat. Phil.," p. 101. 8vo. London, 1845.

* "Proceedings of the Institution of Civil Engineers of Ireland," 27th April, 1852.

† Continued from page 84.

rect to take one-tenth of the actual increase between two census periods, and assume that that represents the annual increase, which it would only do if the population increased by arithmetical progression, or by equal numbers in equal periods of time. The process of deducing the annual rate of increase of population by common arithmetic is very troublesome; and for the convenience of those who may desire to know a more ready way of estimating the population of any place at a given period of time, we append the following example, premising that no further acquaintance with logarithms is necessary than just enough to enable the inquirer to find the logarithm to a number, and its converse, which can be learned in a quarter of an hour:—

Example.—Required the estimated population of London in the middle of 1866?

		Log. Pop.
Population enumerated 1861 ...	2,803,989	6·4477763
Ditto 1851 ...	2,362,236	6·3733233
Logarithm of rate of increase in ten years...		0·0744530
Logarithm of *annual* rate of increase ...		0·0074453

And the number to this logarithm=1·0173; therefore as 100 increased to 101·73, the annual rate of increase in the ten years was 1·73 per cent.

The census was taken in April, 1861, and the interval between that time and the middle of 1866 is five and a quarter years, therefore five and a quarter times the logarithm of the annual rate of increase added to the logarithm of the population enumerated in 1861, will yield the required result:

Log. annual rate of increase	0·0074453
	5¼
	·0372265
	·0018613
5¼ Log. annual rate of increase	0·0390878
Log. population enumerated in 1861 ...	6·4477763
Log. population estimated to the middle of 1866	6·4868641

And the number to this logarithm is 3,068,061=the estimated population of London in the middle of 1866.

The difficulty of arriving at this result by common arithmetic will be understood when it is seen that the annual rate of increase could only be arrived at by extracting the *tenth* root of the actual increase in the ten years—an operation compared with which the finding of a cube root would be simplicity itself. Indeed, the use of logarithms for all purposes involving ratios, or the power of any number, is so advantageous in simplifying the process, as to make it well worth a person's while to obtain one of the small, cheap logarithm books, which are to be met with now-a-days, and to devote a little time to a study of their application; regarding which, all necessary instructions are given in the introduction to the Tables.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

The subject touched on at the close of my last paper, viz., as to clubs being self-supporting, is one of serious moment, but not falling within the scope of the present series. It requires a paper or two for itself. But the fact I then mentioned, viz., that many clubs are doing an immense deal of good without being self-supporting, and that some are self-supporting without doing much good, is deserving the attentive consideration of those persons who imagine that the great test of a club being wanted, of its being on a healthy basis, and likely to last, is, that it should from the beginning of its career, or very soon after, be supported entirely without help from any but its ordinary members. Unquestionably, where this can be legitimately accomplished, it is a great point gained, even as it is always an object to be earnestly striven after. But most of us had to be carried, I suppose, before we could walk; and we must not wonder if these societies, which will necessarily work a great change in the habits and tastes of those whom they are meant to benefit, should not at once receive all that support from working men which alone could make them independent of other help. I am not speaking now of the capital requisite for preliminary outlay. This, of course, must generally be found by wealthier parties than weekly wage men, although, when the latter can be induced to come forward in sufficient numbers, either to subscribe for shares in a limited liability company for building a club house and establishing a club, or to give donations for the purpose, I need not say this is the best possible basis for its formation.

Honorary members' subscriptions, however, or occasional levies on friends, to meet even current expenses, have been hitherto generally found necessary. That pioneer club established by the Rev. E. Boteler Chalmer, in Salford, Manchester (mentioned in my last paper), has needed and received such support, I understand, from its commencement in 1858; but the amount of good it has accomplished is remarkable.

In like manner the two clubs which followed Mr. Chalmer's in order of time, viz., Mrs. Bayly's, at Notting Hill, and Miss Cooper's, in Duck Lane, Westminster, have been successful to an extent as striking as it is gratifying, in benefiting their respective neighbourhoods; but the former required continual help from honorary subscriptions for the first five years of its existence, and the latter does so still—in fact, its supporters have no desire or intention of making it self-supporting. The weekly subscription there is only a halfpenny, and although many of the members would willingly pay a penny, yet, as it is greatly used by numbers of the very poorest working men—costermongers, scavengers, crossing-sweeps, &c.—Miss Cooper has always objected to increasing the subscription, in order that no one should be excluded on that ground, and because she finds no difficulty in raising the considerable sum required to make up the deficiency. No club in the country is probably doing more good than this and the one at Notting Hill, and good of a kind which leads and enables the members in various ways to improve their own pecuniary, as well as mental and moral, condition, so that it would be impossible to give money to help other people in a way that more directly assists them to help themselves. All this is equally true of the very large and flourishing club at Leeds, established by Mr. Darnton Lupton, and which costs him a comparatively large sum every year, as well as of various others through the country, which at present require honorary members' subscriptions to make both ends meet.

Moreover, in the case of clubs, many, if not most of them, only require extraneous help for a time. In the spring of last year I received returns from seventy-seven clubs, thirty-seven of which stated that they were self-supporting; but only a small proportion of these had been so from the first, while some of them would not continue to be able always to claim that distinction. Owing, in part, often chiefly, to the needful system of allowing weekly payments where they are preferred, most clubs are liable to great fluctuations of prosperity, especially during the summer months. About 100 clubs sent no returns at all, and it is to be feared a large proportion of them had no great success to announce in this direction; yet, unquestionably, like the thirty which returned themselves as non-self-supporting, they were nearly all doing much good.

Among clubs that are distinguished by having been at once self-supporting and extensively useful, I know of none that excel, few that equal, the Camden Town Working Men's Club, in King Street, Camden Town, London, N.W., commenced in 1863. Several have been as useful, and others as pecuniarily successful; but few, if any, have equally combined success in both departments. One cause has undoubtedly been excellent premises, including a concert and lecture hall, in a central situation. Another is to be found in the determination of the promoters and managers, from the first, to make the club something more than a place for mere recreation. They have fostered both the educational and commercial element, while they have, at the same time, been untiring in their attention to the recreation department. But the main secret of their success, humanly speaking, has lain in the devoted, self-sacrificing zeal and judgment of its committee and secretaries; while a still more noteworthy, because more important and rarer element of success is to be found, I believe, in the fact that, in the concluding words of their report, as a committee, they have always "sought wisdom and strength where alone it can be found." It is not, indeed, often that a club committee may be found in which, as in that of Camden Town, the persons composing it are all of them prepared and willing to commence their weekly meetings with united prayer. But I must be permitted to say I think it would be a wonderful blessing, and the surest guarantee of success, if they *could* do so and that, where that was not found practicable, if those who were thus disposed could either meet together at some other time to ask for help or guidance, or would each individually do this before coming to the meeting. It must be distinctly observed, that neither this course, nor that which the Camden Town committee have followed, in the slightest degree compromises the strictly neutral, unsectarian character of the club, which, indeed, cannot be too jealously maintained. If any of the members of a club, whether when meeting for business or any purpose, *unanimously* desire to engage in united prayer in a room where for the time being they have the sole right of access, no other person's liberty of conscience is affected, no principle of the club is in the slightest degree violated. But, of course, all depends upon the desire being unanimous.

The only ground for apprehension with regard to this club—but it is a serious one, and requiring constant attention—is, that it has been so good that tradesmen in the neighbourhood use it, and the class of working men by whom these clubs are especially needed is not so fully represented as one could wish. This drawback is probably increased by the ground-floor rooms being frequently occupied by classes and friendly societies, instead of being kept for sociable chat and the inevitable "weed." The best room in the house is given up to a "reading-room." However, there is no doubt as to the incalculable good the Camden Town Club has been instrumental in effecting.

A few other clubs should be specially mentioned as honourably distinguished, in the same way as Camden Town, for combining usefulness and financial success—viz., those at Wednesbury, Staffordshire; at South Shields and Sunderland, in Durham; at Preston and Buersill, in Lancashire; at Guildford, in Surrey; and at Essex Road, Islington, London.

The Wednesbury Club is also distinguished by owing its success almost exclusively to *bonâ fide* weekly-wage operatives, the only person a little above that rank among their managers being a clerk, whose position, character, and influence, however, have been a most valuable element in the enterprise. These men have raised more than £200 among themselves (about £7 only, I think, having been contributed by other parties), and the club has been inspired from the first with that corporate, brotherly spirit on which special stress was laid in my last paper.

The same description applies, almost word for word, to the society at South Shields. I am not equally well acquainted with the sources of the prosperity and usefulness of the Sunderland Club.

At Preston, in addition to an energetic and public-spirited committee and officers, the club has been fortunate in having its refreshment and dining rooms admirably managed; while, by turning its excellent situation (near the market) to good account, and throwing open the refreshment-room to the public, it clears £50 a year. Of course no other rooms in a club should be open to the general public without payment; and I believe that admitting casual visitors to them systematically at a penny a visit is in general a great mistake. There are exceptions, however, where the plan works well. Some clubs make a good deal of money by it, but it tends to impair, if not to destroy, the club principle. To the refreshment-rooms, however, public admission is quite a different thing. The Preston Club has lately held, in conjunction with the Literary Institution of that town, an Industrial Exhibition, whereby it will clear for its share of the profits £1,000!

The Buersill Club is to be marked with special honour, as having originated and been supported *entirely* by weekly-wage operatives (a few Sunday-school teachers, &c.), in the darkest days of the cotton famine. The feeling and principle of fellowship, self-help, and reliance upon a higher blessing, have nobly distinguished the cotton-spinners of this Lancashire settlement. It should be mentioned that the sympathy and encouragement of the vicar was of great value to them.

At Guildford and Essex Road there has been wise and vigorous management, combined with considerable attention to the educational element, while recreation has been actively cultivated.

* Continued from page 118.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are hereby offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best ESSAY or PAPER, and One Prize of Three Pounds for the Second Best Essay or Paper will be appropriated to each of the following subjects, under the conditions specified below.

LIST OF SUBJECTS.

I. THE FRANCHISE.

The advantages of its extension, and the mode of extension most likely to promote generally the interests of the working classes.

II. TRADES' UNIONS.

Special regard to be had to the advantages and disadvantages of Trades' Unions. How the former may be increased, and the latter diminished. The suggestions must be of a thoroughly *practical* nature, and, where possible, illustrated by corroborative facts.

III. THE BEST MEANS OF SECURING A PERFECT ORGANISATION AND UNITY OF ACTION OF ALL THE WORKING CLASSES AS A BODY.

Special attention to be paid to the carrying into operation of such practical proposals as a Working Men's Parliament—Central Hall—Council of Advice, or Arbitration—District Councils.

IV. THE ADVANTAGES TO THE WORKING MAN OF SUNDAY AS A DAY OF REST.

Special attention to be paid to such questions as Sunday Amusements, Opening of Museums, &c., in regard to the effect which the carrying into practice of such proposals would be likely to have upon the working classes.

V. STRIKES.

Are they justifiable under any circumstances? If not, How may they be avoided?—Courts of Arbitration—Instances where disputes between employers and employed have been settled without having recourse to strikes.

VI. EDUCATION.

Of Children—of Adults—of persons in their peculiar trades—Obstacles to education at present—Proposed remedies.

VII. CO-OPERATION.

To be discussed in regard to its *practical* application for Supply of Food—Or a means of union between working men for carrying on business—Co-operation as between employer and employed—Manufacturing Co-operation—Causes of Co-operative failures.

VIII. EXHIBITIONS.

Their advantages—How to start them—What class of articles should be exhibited—Prizes—At what intervals they should be held—Should artisans be allowed to exhibit specimens of their own particular trades?

IX. WORKING CLASS DWELLINGS.

New Government Rule on this subject—Building Societies, how to form them—The Co-operative principle, how it might be more extensively adopted—The difficulties of procuring sites—The class of buildings necessary—Cost of construction.

X. DOMESTIC ECONOMY.

Practical Hints upon Household Management—Food—Domestic Education.

CONDITIONS.

I. Each essay must be the original production of a *bonâ fide* working man, or the wife or daughter of a working man.

II. The same persons may send in essays on two or more of the subjects specified.

III. Each article must be written on one side of the paper only, and on the top of the first page must be written a motto corresponding with that on an accompanying sealed envelope, which envelope is to contain the writer's real name, occupation, and address. These envelopes will not be opened until the adjudication has taken place.

IV. Each essay must, as far as possible, be of a thoroughly practical nature, and should not exceed in length three pages of the Working Man. Each page contains about 2,320 words.

V. The essays must be sent in before the first day of June next, addressed to "The Editor of the Working Man, care of Messrs. Cassell, Petter, and Galpin, Ludgate Hill, London, E.C."

VI. The papers to which the prizes shall be awarded will be published in the Working Man, and are to be the property of Messrs. Cassell, Petter, and Galpin, who will reserve to themselves the right of re-publishing them in any manner best calculated to give them the largest amount of publicity and efficiency.

VII. The Donors of the Prizes, of course, reserve the right of withholding the prizes in any department in which, according to the opinion of the Adjudicators, none of the essays submitted shall have evinced sufficient intrinsic merit.

The names of the Adjudicators will be announced in a subsequent number of the Working Man.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MARCH 10, 1866.

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Opinions Wanted in Parliament.

The representation of working men is practically needed now in the House of Commons. There are no members there who know much of them personally—not one who is elected by them. The inconvenience of this is felt now in a striking way. Mr. Clay, the member for Hull, has introduced the Bill of which we have already spoken, with a view to make legal a franchise of intelligence. Mr. Gregory, the member for Galway, made a very generous speech in its support—no half-hearted utterance with a concealed purpose, frustrative, or mischievous—but an honest, thoughtful defence of the measure; even saying in a manly, open way—which no other member imitated—that if the Bill led to universal suffrage, all he had to say was, "so be it." Lord Elcho—who is a sort of king elect of the Volunteers—a connoisseur both in art and politics, gave his support to Mr. Clay's proposal. Even Mr. Horsman, who persists in being member for Stroud, and who has become a species of Ishmael among our legislators, gave the new proposition countenance. Indeed, the new franchise had the singular good fortune to receive the support of the members most able to damage it, if unfriendly to it.

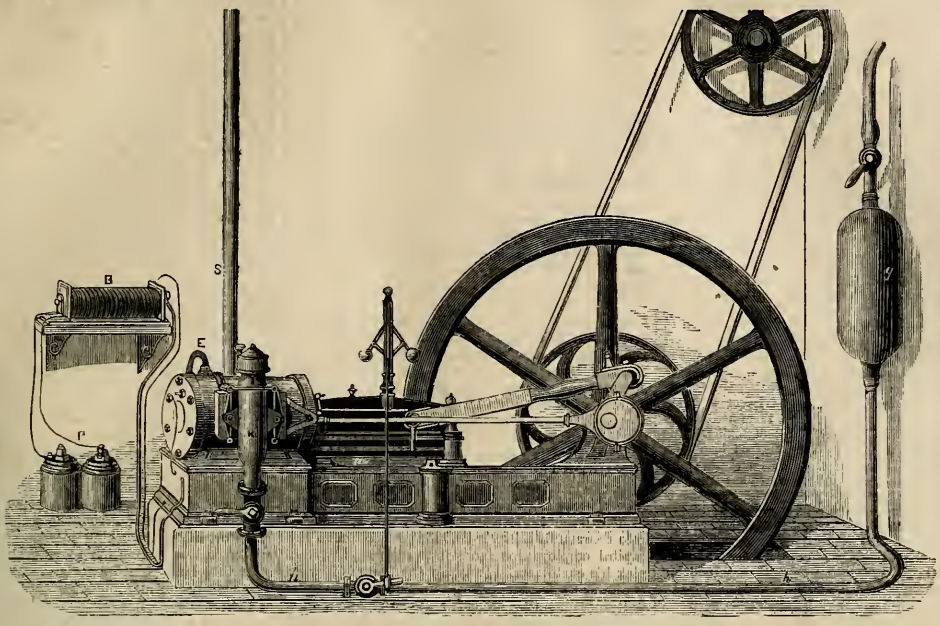
The question is fairly landed in the House, and will in due course come on for a second reading. Now a new difficulty arises. What do working men think of the Bill? Does it meet their views? Do they want it? Would they be at the trouble to go through the kind of examination proposed as a qualification for the franchise? Is Mr. Clay's Bill likely to lie upon the shelf if passed? In fine, what is the opinion of working men about it? There are members of Parliament by no means unfriendly to the working class who see objections to this Bill, but they want to know what working men themselves think of it. Since there are no representatives in the House of Commons who can personally report the opinions of working men, we, in response to some solicitations which reach us from members, undertake to make inquiries in this place.

We remember that a political union in the north of England of some reputation, did send a memorial to Lord Stanley when the Reform Bill of the Derby Government was before Parliament, praying his lordship to introduce a popular intelligence franchise into the Bill of his party; but their demand was—examination in the elements of industrial economy and constitutional history. But beyond this memorial, and a pamphlet to the same purport—published by a writer quoted by Mr. Gregory in the late debate on Mr. Clay's Bill—we do not remember any agitation among the working class on behalf of a measure founded on the Intelligence principle.

Now that a Bill is actually before Parliament to enfranchise working men who have intelligence, will intelligent working men among our readers give it attention? It is very seldom that the House of Commons wants to know the opinion of working men on any question; but now it does, its laudable and exceptionable curiosity should be gratified. Will, therefore, such working men as may peruse this article think over the subject, make up their minds upon it, and ascertain what views are entertained upon Mr. Clay's Bill, in working class circles, in workshops, in working men's clubs and institutes, in trades' unions, in reading rooms, and in whatever societies working men meet? It will fare ill with working class interests in the future—it will discourage members of Parliament anxious to promote the advancement of the people—if no attention should be given and no trouble taken to throw light upon a measure introduced with friendly intent towards them.

We have endeavoured to put with plainness the kind of questions to which answers are desired. The art of asking questions, without suggesting replies, is one of the greatest accomplishments of the lawyer. At the risk of infringing upon this excellent rule, we must indicate the points to which attention should be directed. There are many men able to give an opinion, but they naturally require to have explained to them the points on which an opinion is expected. It is calculated that a perfectly ignorant, unlettered man would require to give three months' application, to learn what would be necessary to enable him to pass his examination, and then he would have to take trouble to get unusual forms, fill them up, and dance attendance on examiners, and be at some small expense to get his certificate of the suffrage. We put the matter in the worst light, because it is in that light in which it should be considered. Do the working class want the franchise at all? If they do not, they will not take any trouble to get it. If they do desire it, will they be likely to take all this trouble to acquire it? That is the chief question.

Under this Act a candidate for a vote would require to write from dictation. A word sounding like "rane" he might write "rein," a bridle, or "rain," a shower, or "reign," the duration of Her Majesty's occupancy of the throne. He might understand each thing quite well, and be in a dense fog as to the orthography of the matter. Is he to be denied citizenship because of a clerical error which the barons who signed Magna Charta would have made? This seems absurd. But with this absurdity—which is more apparent than real—working men have just now nothing to do. Members of Parliament will exercise their wit upon these points. Voting, we are well aware, is but a small part of the duties of citizenship, which is a very different thing from clerkship. There may be objections to Mr. Clay's Bill. There are to every possible Bill. There are greater objections by far to the present blundering, irregular, uncertain, partial, and materialistic franchise which we now have, and which some people dignify with the name of "constitutional." Working men have not to consider what are the merits of this Bill compared with all possible Bills, but what would be the advantage to them of this measure, which is the only one specially directed to promote their entrance to citizenship. Answers and information on this point we shall be happy to record.



THE LENOIR AIR-ENGINE.

The Lenoir Air-Engine.

The Lenoir air-engine recommends itself to the notice of all manufacturers who require the constant or occasional use of a small motive power. In its working parts it greatly resembles an ordinary steam-engine, but it requires no steam nor coal, it has no boilers, nor feed-pumps, nor chimney, and involves no risk from fire or explosion. Its piston works with the greatest regularity, fast or slow, at the pleasure of the guiding hand; and it saws, and planes, and grinds, as if by magic.

What, then, it will be asked, is the invisible agent that gives life to these docile organs, which impart so regular a motion to this curious machine? This power which gives life to our manufacturing industry is the same agent that gives light to our cities—coal-gas: the same gas which, under the name of fire-damp, causes such terrible explosions in our coal mines. But in the Lenoir engine this destructive power is subdued to the will and convenience of the engineer, and becomes his slave.

Most of our readers have seen a flickering gas-light, in which a rapid series of trepidations, the result of an alternate mixture of a stream of air and a stream of gas occur; and they have doubtless noticed what takes place in the flame of a candle or a lamp. Similar phenomena take place in the Lenoir engine. The distributor opens in succession a series of small holes, through which a stream of gas issues, penetrates, and mixes in the cylinder with a stream of air; then an electric spark inflames the gas, which, by virtue of its great calorific power, suddenly heats and expands the air which the combustion has not decomposed. This dilated air, in proportion as the gas arrives and becomes inflamed, drives forward the piston; similar effects are produced at the other end of the cylinder; the piston returns, its motion is established, and the engine works.

The Lenoir engine is, then, a hot air-engine, or rather a *dilated air-engine*, but immeasurably superior with respect to the results obtained to any other machine of this class yet invented; for in such engines, besides the complication of the motor and its accessories, the oxygen of the air heated to a high temperature in a short time renders the cylinders useless. We have seen the cylinder of a Lenoir engine, after being in constant use upwards of two months, remain as bright as when it was turned out of the machine-shop.

The production of the gas is as simple an affair as can be desired, and requires only a very cheap material. All inflammable gases are available for this engine, but hydrogen answers best. A stream of water allowed to trickle upon live coals or coke readily yields a supply of hydrogen, which of all gases exhibits the greatest calorific power, and is consequently that which gives the maximum effect.

The engine consists of a cylinder placed horizontally upon a cast-iron frame; of a piston which works in a cylinder, and, by means of a crank, transmits its motion to the crank of the horizontal axle, to which the fly-wheel and the moving-pulley are attached. The gas arrives by the pipe *h*, after having passed through the regulating reservoir, *g*, made of vulcanised india-rubber, the function of which is to regulate the supply, and to suppress all action upon the branches which may draw from the same gas main. A pipe, K, receives the gas brought by the pipe *h*, and conveys it to the valve, which a rod, moved by the excentric chuck at the end of the axle, opens and shuts alternately. The two Bunsen batteries, P, which serve to produce the electricity, are placed near at hand, and put in communication with a Ruhmkorff's induction apparatus, represented at B. The electric current of this apparatus is conducted by isolated wires to the *distributor of electricity, m*, placed on the front of the frame of the engine, and, by an ingenious combination, the motion of the piston-rod regulates itself, by carrying a little movable runner before the distributor, and also regulates the supply of electricity, and its arrival at one or the other of the *inflamers* placed in each end of the cylinder. The burned gases, after their action in the engine, escape by means of a valve through the channel S, and the water employed to cool the motor-cylinder enters between the double envelope by a pipe placed near the gas escape-valve, and goes out by the pipe E.

Such are the elements of the Lenoir engine. To set it in motion, first establish the electric circuit; open the cock to admit the gas; turn the fly-wheel, and then the engine is in operation, and may be stopped with the same facility that we light or put out a candle.

From a half-horse power to that of three or four horses, these engines are destined to render valuable service to small manufacturers and others to whom steam power is too expensive. "I had four men," says a manufacturer, "whom I employed at grinding-mills, at a cost of 12s. a day. I have replaced them by a one-horse engine, which costs me only 6s. or 7s. a day, and works as I wish, and when I wish, always obedient and ready to serve me." All who desire a small and portable motive power, without furnace, chimney, boiler, or danger of explosion or fire, and free from all kind of nuisance to the manufacturer or his neighbours, which may be placed anywhere, in a cellar, shop, or factory, will find their wants supplied by the Lenoir air-engine.

THE MANCHESTER ART WORKMEN'S EXHIBITION.

The second annual exhibition of the Association of Art Workmen resident in and about Manchester was opened on Feb. 26. The inaugural meeting was presided over by Sir J. P. Kay Shuttleworth, Bart., and the usual address, or lecture, was delivered by Lord Houghton. The noble lord showed that, in itself, an exhibition of works of art was a good thing; that such an exhibition as that which they were inaugurating, in which art and industry were combined, was a very good thing, and that its influence upon workmen and others must be very considerable. He wished to see a larger development of the artistic feeling in manufactures, and it was but natural to ask that, in return for the beauties of scenery of which our manufacturing system had been the means of robbing us, we should have beauties of another kind. The art of which he knew most was the art of literature, and he had very frequently received verses and other specimens of that art from men who told him of the few opportunities which they had of cultivating the mind. Even when what he thus received was very poor in quality, he was careful to treat the men with respect, for they deserved it. They showed that they had some aspirations after what was better than a mere animal life. But he always took care to warn such men of the danger of looking to that which might ornament their life for their main support. To very few indeed could literature afford fortune and renown, and it was wise that those who looked to it for either should be asked to think of the disappointment which might await them. This applied as much to other arts as it did to literature. He was glad to see that in the exhibition which they were thus opening there was an illustration of the way in which working men might laudably add to their art knowledge, increase the value of their labour, and improve their own intellectual and moral condition. Such an exhibition ought to be encouraged by all classes: the upper classes ought to afford a living, not a dead patronage; employers of labour should see in it a means of increased gain to themselves, from the increase of skill in the employed; and working men themselves ought to feel more and more the advantages of cultivating to their utmost the faculties which God had given them. Such an exhibition was, too, a palpable public advantage. It ought to show how far resident workmen could do the work which, at present, it was too much the custom to have performed by men sent from a distance.

Speeches were also made by Mr. Oliver Heywood, Dr. J. Watts, Ph.D., Dr. Fairbairn, Sir J. Bardsley, the High Sheriff, Sir Elkanah Armitage, and others.

The exhibition is a very important one. The improvement upon that of last year is very apparent. Much of the space is occupied by examples of decorative

art, and in painting and graining; in wood carving and modelling, enough is shown to convince the visitor that Manchester artisans are equal to any ordinary demand which may be made upon their skill. The committee of management have done wisely in determining that the exhibition should have a distinct and useful purpose. Hence, whilst they do not utterly refuse admission to "hobbies," they show that they attach more importance to such an employment of leisure time as will tend to aid the workman in his daily duties. The association from which the exhibition springs intends devoting itself to the development of the art-skill of the workmen whom they can bring together, and one main object of their present effort is to show what skill those workmen possess now. It is hoped that, as one result of this exhibition, the association will be able to furnish, for the use of its members, a selection of educational works on industrial art, together with illustrations and practical examples, which have been hitherto beyond the reach of individual workmen, but which are of the highest value to all who aim at improvement in their various callings. Indeed, it is intended to make the association a permanent art institute for art workmen. No one can over-rate the importance of such an institution, and we believe there is so much of business tact and organising power in the Manchester working men that, with the aid and advice of those to whom they have been so far indebted, there need be no doubt of their success in their new undertaking. The exhibition contains a number of articles on loan from gentlemen who feel some interest in it, and these are mostly illustrative of art industry. Some fine old Wedgwood ware, some Sèvres porcelain of the time of Louis XV., as well as some English porcelain of to-day, will attract considerable attention. It is noticeable that the committee have attended more to the tasteful arrangement of the objects gathered together than has been the case in most industrial exhibitions. In doing this they have had the aid of two architects and an artist exhibitor.

Building Societies.

Benefit Building Societies are not at all properly understood by the great majority of the industrious classes; and even among the members of these societies themselves there is wanting an intelligent "because" for the various arrangements which are in force.

It is with a view to supply this, and to assist a "working man" to select from among the many and varied societies established *the one* that shall suit his circumstances better than all the others, either for investment, or as a help in his aspiration to become the proud owner of his own house, that these remarks are written.

Building Societies are all either permanent or terminating. A permanent society is so constituted that, while any member can terminate his connection with it whenever it may suit him, without any particular prejudice to the society or loss to himself, a constant influx of new members is secured to make up for those who, from time to time, withdraw, by the society offering precisely the same advantages to borrowers and investors who join after it has been any number of years in existence as those shareholders enjoyed who were enrolled the first year; and thus the society becomes a permanent society. We are aware that permanent societies are regarded by many as suitable exclusively to the capitalist; but as we know that many working men do, and that many more might, use them with considerable advantage to themselves and families, we cannot pass them altogether without notice.

A Permanent Benefit Building Society consists of two classes of shareholders—investors and borrowers. The former are induced to place their moneys in the society by the prospect of a high rate of interest, which the latter have to pay.

The method of receiving moneys, both on paid-up and subscription shares, is closely similar in the different societies; but in respect of repayment and rate of interest, there are scarcely two societies alike. With respect to investors, we suppose that the first consideration with a working man, who feels he can put away a few shillings periodically, is *security*. He wants to feel quite sure that what he is putting away is perfectly safe. Secondly, he must know that he will be able to get it again whenever he may require it, without loss or delay; and, thirdly, he wants, if he can get it, a higher rate of interest than can be obtained elsewhere, provided he is satisfied that his money is safe, and easily withdrawable.

Now, as to security. Those societies which speculate in houses or land—that is, buy either or both, with the expectation of selling again at a profit—must always run the risk of losses. And although we are quite aware that losses are very seldom incurred, yet, as they are now and then, we advise the working man not to use such societies for investment, but to leave them for capitalists, to whom a slight loss will not be of so much consequence.

J. Tidd Pratt, Esq., the barrister who certifies the rules of building societies, will not certify a rule empowering the directors to borrow money for the purposes of the society; so that, if money is borrowed, those who obtain the accommodation are alone liable.

A permanent society, therefore, which merely receives the subscriptions of one class of its members, the investers, to advance to the other class, the borrowers, upon approved mortgaged property, can only suffer loss in consequence of some of the property becoming forfeited, and, upon being sold, realising less than the amount advanced thereon. Seeing, however, that permanent societies make it a rule only to lend three-fourths or four-fifths of the value, and that they always set apart a certain portion of the profits to form a reserve fund, there appears to be very little probability of the investors suffering, even if a loss to the society be incurred. It is worth knowing, that the permanent societies whose charges are least to borrowers are less likely to make losses than those whose charges are higher; and this is so because, as a rule, the latter advance nearer up to the value of the property than the former; and the reason is evident: the tradesman whose prices are moderate commands a larger trade in proportion to the capital employed, is more independent, and can pick his customers. Precisely the same is it with Building Societies.

Respecting the second and third points, a working man wishing for an investment should be careful to learn from the rules for himself what are the provisions relating to withdrawal, interest, and bonus.

Some societies do not pay any interest if investing shares are withdrawn within the first year; some only four per cent. per annum for a certain period, then five per cent. for a longer period, and only the full share of profits after a long time—eight years, for instance. Other societies there are which allow the usual interest and full share of profits after the first year. The former answer the purpose of the capitalist who can allow his money to remain, because he not only takes his own share of profits, but he participates in those shares of profits which have been forfeited from time to time by the poorer members who have withdrawn, while the latter are much more suitable for the working man, because the profits are divided annually.

The average interest which permanent Building Societies pay, including bonus, appears to be about seven to eight per cent. per annum.

We come now to consider the advance department of a permanent society.

A special advantage is here offered to intending borrowers. The money can generally be obtained almost upon application; and although a man may have to pay a high rate of interest for the accommodation, it often happens that—provided he can secure a house or property by a certain time—it not only pays him to do it through a permanent Building Society, but he actually realises a handsome profit from the transaction. The following illustration will serve to show how this may be the case, the particulars being taken from a prospectus of a Building Society in London. Supposing a person wishes to purchase a £250 house; the society will advance about £200 *net*—

The re-payments to the society, including principal and interest for fourteen years	£21	10	6
Ground rent	4	0	0
Repairs, insurance, &c.	3	0	0
Total	28	10	6

The rental of such a house will be about £26 per annum. Thus, after allowing for law costs and amount paid to complete the purchase, with interest thereon, for the whole term, and the extra annual amount required beyond the rental of the house, there appears a clear profit of £120 to the member at the end of the term; or, to put it the other way, he will then be in possession of a £250 house of his own, to enjoy rent free for the remainder of the lease, at a cost of only £130. If a working man intends, however, applying for an advance, let him bear in mind that very nearly all permanent societies deduct a certain amount from their shares for commission or discount. The exact net amount which is advanced per share, should, therefore, be ascertained, as well as the gross amount of the re-payments required; also, what proportion of the purchase-money is usually advanced by the society, and the amount of the surveyor's and solicitor's charges; so that he may know how much ready money he will require to complete the purchase. Some societies, but not all, require, as additional security, their borrowers to keep up an investing share, which adds to the liability, although the amount paid on such share is placed to the member's credit. With respect to the mortgage, it should only secure the amount actually advanced—not, as in some societies, a certain number of monthly payments of a stated amount. Because the monthly payments include both principal and interest for the whole time; and if a member pays off the advance in seven years, instead of fourteen years, it is anything but fair to make him pay interest for the whole term. The rule on redemption ought to be very clear, so that a person redeeming within the period allowed by the mortgage, shall be charged interest only for the time he has had the use of the money.

The above particulars cannot be learned from a prospectus (indeed, sometimes it does appear as though the prospectus was merely used to veil the truth), but only by a perusal of the rules, while some of them can only be ascertained from the manager or secretary, or from some person who has actually borrowed from the society.

Unfortunately, working men have little time, and often less inclination to read the rules, even after they have joined a society. But the writer, who has had considerable experience of the working of these societies, has always found those members to be the most satisfied, and the best members, in every particular, who are acquainted with, at least, the rules of their own society. They know the extent of their liability, and do not grumble when the rules are faithfully administered, and, understanding the constitution of the society, they expect no more than they are likely to realise.

Terminating societies are of two distinct kinds; firstly, those consisting of two classes of shareholders—investors and borrowers, and which are announced to terminate in a fixed number of years; and, secondly, the Mutual Benefit Societies, which are established upon the reciprocal loan principle; that is, every member is supposed to sustain the double character of investor and borrower; these societies terminate only when all the shares have been advanced or withdrawn. We shall consider their features in another article.

(To be continued.)

The Textile Manufactures of England.

BY WILLIAM ROSSITER, FELLOW OF THE WORKING MEN'S COLLEGE.

II.—IN THE ROMAN, SAXON, AND EARLY NORMAN TIMES.

The ancient Briton knew but little of wearing clothes, and still less how to weave the materials for them. The dried skin of an animal served him alike for daily wear and nightly covering, until the Phœnician trader, who sought the "tin islands" for tin, copper, and dried skins, taught him, in return, how to make a rude kind of cloak out of the wool that had before covered his sheep.

The Roman found, in his new province, rude miners and ruder husbandmen, whose only dress was a coarse cloak made of wool, undressed, but often dyed. In the interior, where neither mining nor agriculture were known, the only occupation of the native was hunting, his only dress the skin of the bear or wolf, hyæna or tiger, that he had recently caught and killed. Of many, the only costume was a coat of paint.

With the Roman went order and system. Under his teaching, the Briton grew more corn and wore more clothes, worked deeper mines, and built better houses, began to live in towns, and to have a social life, adopting the manners of his teacher, and also his dress. This dress consisted of an under-garment, a tunic, and the toga; or, to use more modern names, a shirt, a coat, and a cloak. These were all of wool, as were also the leggings, which, with the leathern shoes or

sandals, completed the dress of either Roman or Briton.

Boadicea, the Queen of the Iceni, who headed the revolt of her subjects in the first century, wore the dress of the people against whom she led them, her vanity being even greater than her patriotism. She is described as wearing "a various-coloured tunic, flowing in long, loose folds, and over it a mantle, while her long hair floated over her neck and shoulders."

The Roman found Britain a wild country of woods and fens, peopled by a race of half-barbarous hunters and husbandmen; he left it a settled country, with large towns, good roads, a productive agriculture, and extensive exports, enjoying peace and prosperity in a much greater degree than any province on the Continent.

While every Continental province was again and again devastated by successive hordes of barbarians, the Britons, protected by the surrounding sea, that moderated alike the climate and the inroads of invaders, quietly grew corn enough, not only to feed themselves, but also to send in large quantities to Rome, and when left to themselves, the Roman legions being called home, they contested with the invading Saxons every inch of ground.

From their first landing in the Isle of Thanet, it took the Saxons nearly 150 years to establish six of the seven kingdoms of the Heptarchy. Of the Britons, some retired to the mountainous regions of the west, some remained to cultivate for the Saxon the land they had hitherto tilled for themselves and the Romans.

In the seventh kingdom of the Heptarchy, called Mercia (or boundary), all the conflicting tribes of the Saxons, together with the Britons and Romans who were living in the centre of the country, met in conflict for the land, and gradually merged into a kingdom, ruled by the strongest of them.

But all this time, and amid all this fighting, the Saxon British labourer still worked, the corn still grew, the wool was still woven into coarse cloth, and the Saxon, in time, dressed very much as the Briton and Roman had dressed before him. The alterations were in the fashion rather than in the material, in the cut rather than in the cloth.

Wool and leather were still almost the only materials for clothing, but linen was used for the under-garment, as it had been in the later time of the Roman rule. About the third century, the spinning and weaving of flax had been brought from Egypt to Rome, and soon became general in Britain. Fuller mentions in his "Church History" a St. Audre who, in the seventh century, made herself conspicuous by wearing only woollen garments, which "whether it made her more holy or less cleanly, let others decide."

The dress of a Saxon soldier was a linen shirt, a short woollen or leather tunic, and a short woollen cloak fastened on the right shoulder. Leather leggings, or pieces of wool bound round their legs, with leather shoes or slippers, completed the dress.

A Saxon leader wore a linen shirt, a long woollen tunic, and a long cloak of wool, lined with fur and bordered with gold. This was fastened in front, distinguishing its wearer from his serf by its length, quality, and manner of being worn. The women wore long loose robes, some of linen and others of wool, and a veil for the head.

The Normans—gay as adventurous, equally at home wherever they found themselves, whether in Normandy, England, Sicily, or Jerusalem—brought with them graceful manners and splendid costumes: fair linen, fine cloth, silk cloaks, gold embroidery, foreign furs, and jewelled gloves, adorned as well as clothed the new lord of the land; but his Saxon serf continued to wear the leathern coat and leggings, while the Saxon thane dressed in a style intermediate between the richness of the Norman and the coarseness of the swineherd.

But neither the splendid apparel of the Norman lord, nor the comfortable dress of the Saxon thane, was of English make. The wool made in England was still too coarse for any but the roughest use. The finest cloth was made in Flanders and in Spain; the silks were brought from India, China, and Italy.

The trade between England and the Continent was carried on chiefly by Flemish merchants. They brought hither jewels, wrought silks, cloth of gold and of silver, fine woollen cloth, spices, sugar, linen, and many other things; taking away, in exchange, raw wool, lead, tin, sheep and rabbit skins, leather, and cheese.

Venice was at this time the centre of trade between Europe and Asia; bringing to the former the silks, spices, and jewels of the latter, and taking from her, in exchange, woollen cloth, leather, and raw wool.

In the reign of Henry I., a number of Flemish weavers, whose home had been inundated by the sea, came over to England to seek a new one. Henry gave them welcome, and settled them first near Carlisle, and then in Gloucestershire.

This was the first great improvement in English weaving. Under the influence of this Flemish teaching, the quality and extent of the cloth made increased rapidly, and England began to sell less raw wool, and buy less woollen cloth, and also to send abroad more cloth of her own making, thereby enriching the country by the extent of the wages thus earned.

By the end of the twelfth century, wool weaving was established in the towns of Oxford, York, Nottingham, and Lincoln; and soon after the English weavers began to buy foreign raw wool, to work up with their own; thus further increasing both the quantity and quality of their work.

Edward III. married a Flemish princess, Philippe of Hainault, and partly from his own desire to increase the trade of his country, and partly through his wife's influence, induced great numbers of Flemish weavers to come over and settle in England. Fuller, speaking of the quantity of raw wool sent out of the country to be manufactured and then brought back again, says that the Duke of Burgundy instituted the Order of the Golden Fleece, because the English found the fleece, and the Flemings the gold by weaving it. He describes the English as "knowing no more of the wool than the sheep that wear it." He continues—

> Happy the yeoman's house into which one of these Dutchmen did enter, bringing industry and wealth along with them! Such who came in strangers within their doors, soon after went out bridegrooms, and returned sons-in-law, having married the daughter of their landlord who first entertained them. Yea, those yeomen in whose houses they harboured soon proceeded gentlemen, gaining great estates to themselves, arms and worship to their estates.

Edward dispersed his new subjects over the kingdom, lest upon anything displeasing them they should return in a body. They found in England fuller's-earth of a better quality than they had had before; and this enabled them to improve still more the process of fulling or felting, by which the fibres of the woven fabric are brought into closer contact, in which process fuller's-earth is used.

Fuller, in his quaint way, says—

> And now was the English wool improved to the highest profit, passing through so many hands, every one having a fleece of the fleece, sorters, combers, carders, spinsters, weavers, fullers, dyers, pressers, and packers. . . . Nature may seem to have pointed out our land for the staple of drapery, if the idleness of her inhabitants be not the only hindrance thereof.

Woollen manufacture was now fairly established in Norwich, Sudbury, and many towns in Essex, Kent, Sussex, Berkshire, Hampshire, Gloucestershire, Devonshire, and Yorkshire; and it is at this date of 1331, when the Flemish weavers came to England at Edward III.'s invitation, that the English woollen manufactures are generally said to have begun.

The first manufacture of silk in England was about 1400, and of cotton about 1650, so that while the wool manufacture was steadily improving under every encouragement, all the silk used was purchased from abroad, and cotton was entirely unknown. Both silk and cotton have, however, been spun and woven in other countries, from the very earliest times of which we have any records.

China is the birthplace of silk, and the only country in which it was manufactured before the Christian era. The knowledge of the art gradually extended to India, Persia, and Syria. About the year 500, some eggs of the silkworm were hidden in a hollow cane, and secretly conveyed from China to Constantinople; and from these few eggs all the countless myriads of European silkworms have been produced.

At the time of our Saviour's birth, silk was very little known in Europe, and was worth its weight in gold. Rome was the chief country where it was used, and the wearing of it was forbidden by the Emperor Tiberius to all but women of rank. The trade between Europe and India and China, the two countries where silk was wrought, was carried on by Persian merchants; but when, under the Emperor Justinian, the art was brought to Constantinople, Venice became the centre of the silk trade. About the time of the Norman Conquest, Rome was the only country in Europe in which silk was made; but in 1100, the Normans, who plundered Athens and Thebes, carried with them to their new home in Sicily both silkworms and silkspinners.

From Sicily the working of silk spread throughout Italy—Florence, Bologna, and Modena being the chief places. It next reached France and Spain; and by the end of the fifteenth century it had made its way to England, and had become one of the settled manufactures of the country, though as yet only spun and woven into narrow ribbons, and other small articles.

Cotton was spun and woven in India, its native country, in the time of Herodotus, 445 B.C., who describes a plant "producing wool instead of fruit." In the first century it was found in Egypt; the Mahometans introduced it into Arabia; and from India it was taken to China. The cotton plant, and the spinning and weaving of its woolly fibres, was thus extended over the whole of Southern Asia and Egypt. Muslin derives its name from the town Mosul, in Mesopotamia, where it was first made; nankeen from Nankin, in China; and calico from Calicut, in Hindostan.

Columbus, when he discovered America, found the cotton plant growing wild in the West India Islands, and the people wearing cotton dresses; so that cotton seems to have been native in two different parts of the world far distant from each other, and having similar names—the East and the West Indies.

Results of the New Associative Principle.

An incidental proof that Co-operation, in a partial form, has no injurious effect upon profits, comes from manufacturing quarters in Halifax. Twelve months ago, the public were informed that the firm of John Crossley and Son, of which Francis Crossley, M.P., is a principal, had converted their large carpet works into a Co-operative concern, and rendered all their numerous work-people, even the young unmarried hands of both sexes, eligible to become shareholders. The shares were fixed at £15 each. A considerable portion of the hands—a larger number than could reasonably be expected—took shares. This admission of the workmen as shareholders in the factory in which they labour may be considered to have been attended with beneficial results; and certainly no disastrous results have ensued, for the new company, after the first year of working upon the Co-operative principle, have declared 15 per cent. profit. The Messrs. Crossley may, therefore, be considered as having furnished a new means of profitable investment for the workmen in their employ. Security so undoubted and interest so high are probably not within the reach of the working class in any town. It is something to the credit of the new principle of associative industry that this result has been so early attained.

The experiment at the Methley and Whitwood Collieries, where the Co-operative principle is yet further extended, is also proceeding satisfactorily. A half-yearly report has been issued to the shareholders, and a satisfactory dividend is anticipated at the conclusion of the year. More coals have been worked than under the old system, and a better appreciation of the system is growing up among the workmen. In these collieries the workmen not shareholders participate in the profits accruing after 10 per cent. has been realised.

An energetic and experienced manufacturer in the north of England has under consideration modes of applying Co-operation to the department of engine manufacture, and to shipbuilding also, with respect to which it has not as yet been attempted to be applied.

The project of the Clayton Bar Iron Company, whose seat of operation was to be in the neighbourhood of Manchester, and which was based on well-defined Co-operative principles, has been for the present abandoned. It is said that the Co-

operative principle was fatal to it. Influential persons, who might have joined the company, were under the crude impression that Co-operation was a sentimental principle, instead of the newest productive element of industry. A new scheme is in agitation in Manchester for extending the principle of Co-operation to the production of coal and clay; but the Clayton failure remains a fact.

This circumstance, which some time ago would have been cited as a fatal fact, is now counted as a mere incidental difficulty of a nature often to be expected, provided for, and passed by, and the predetermined work of association to be proceeded with. Messrs. Greening and Co., the chief promoters—indeed, we might say, the official promoters — themselves manufacturers of iron gates, wire fences, and similar goods, have, as we briefly announced last week in our gossip column, proceeded to put their own company upon the new principle of associative interest. They have held a meeting at which it has been unanimously resolved: "That, in order to stimulate the zeal, fidelity, and goodwill of the clerks, foremen, and workpeople employed by this company, and with a view of enabling them to acquire a substantial interest in the prosperity of the firm, the directors undertake to recommend and support, at the first ordinary meeting of shareholders, the adoption of the following special arrangements:—1st. Whenever the net profits in any one half-year exceed 7½ per cent. upon the gross paid-up capital of the company, then for every additional 2½ per cent. dividend or bonus paid to the shareholders upon their capital, a dividend or bonus of 2½ per cent. shall be paid to every person employed by the company upon the amount of wages earned by him or her in the same half-year; provided always that such participation in profits shall not give to any of the workpeople (not being shareholders) any right to interfere in any way in the management of the company's business; nor shall it render them liable to any debts or responsibilities incurred by the company. 2. That shares of the company at par value be issued from time to time to the workpeople, and that they be permitted to pay the calls upon same, either out of a common fund to be subscribed by them, or out of dividends and bonuses accruing to them. 3. That these resolutions be printed and circulated amongst the workpeople, with a cordial appeal to them to co-operate in promoting the welfare of the establishment of which they form a part."

The Messrs. Greening show great practical mastery of the new principle, and always devise very clear and just rules for applying it, not only clear but manifestly equitable, which is a most necessary thing to accomplish, and very rarely reached. Dubiety here is danger. Unless equity appears to be equity, it may look like injustice, and repel like it.

There is published in Philadelphia an industrial newspaper, entitled *Fincher's Trades' Review*, which copies weekly from the English journals the whole of the Co-operative news they happen to contain. Thus the incidents of progress made in the various towns of England and of Scotland immediately produce effects on the other side of the Atlantic, and serve as arguments to encourage the workmen of America to proceed energetically with their schemes of Co-operation. It is surely encouragement to Co-operators here to know that success achieved in Great Britain generates success across the Atlantic.

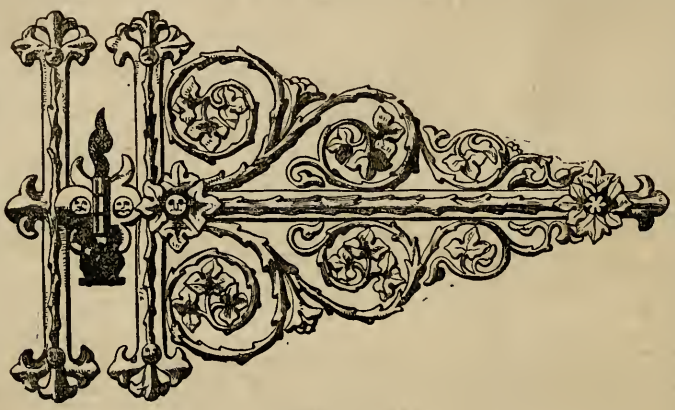
The sum required to defray the expenses for the coming year of the royal parks and pleasure-gardens under the management of Her Majesty's Commissioners of Works is £98,769. Of this sum Kew Gardens take £20,216, and St. James, Green, and Hyde Parks, £26,639.

It is estimated that the expenses connected with the Houses of Parliament in the coming year, will amount to £61,090, of which sum £21,420 is for "completing the Clock Tower, and for works in New Palace Yard and its approaches," and £4,800 for various works of art.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

In mediæval architecture, the hinge was frequently rendered a conspicuous and characteristic architectural ornament, instead of being, as at the present day, generally looked upon as a grievous eyesore, to conceal which the art of the carpenter or the mason becomes necessary, although not always with encouraging results. Architects, as a body, seem to entertain a strong aversion to the hinge as an ornamental architectural feature. Yet there are not wanting numerous modern examples to show the effective manner in which it can be rendered a graceful and appropriate adjunct to the outer doors of a building, adding not merely to their beauty, but likewise to the strength. It was in the construction of ornamental hinges and similar articles, in which ornament was combined with utility, that many of the ancient Continental iron-workers acquired much of the taste and skill which has given their productions such a widely extended fame; and it is a matter for regret that the art should have declined. The revival of Gothic art in this country has, however, led to the re-introduction, with considerable success, of the ornamental hinge into modern architecture; and, as the public taste becomes still more improved, we may naturally look for a considerable extension of the ornamental hinge manufacture. The accompanying illustration represents a tasteful specimen of this branch of art-industry.



ORNAMENTAL HINGE.

Flange Iron Girders.—The application of iron girders to domestic building purposes as a substitute for wood in beams and joists, has latterly commanded much attention in engineering and architectural circles, and it is therefore not surprising that a goodly number of scientific men responded to an invitation from Messrs. William and Thomas Phillips, of the Coal Exchange, to witness the testing of their patent solid flange girders, which took place at the experimenting works of Mr. Kirkaldy, in the Grove, Southwark. The testing machinery is fixed in an apartment having all the attributes and aspects of a millwright's workshop. Like the girders, it is the result of long and deep engineering investigation, and its province is to determine the strength and capacity of iron castings. To this ordeal two rolled iron beams adapted for a spacious West-end mansion were experimented upon, and the results were generally allowed to prove the economy and adaptability of the patent, for which credit must be given to Mr. Holman, who is alike the founder and exponent of this new application of wrought iron for buildings. While engaged in making a series of tests, this gentleman discovered that rolled iron beams always exhibited a tendency to yield laterally before their full resistance was developed, and by the application of his improvements the beam can only give vertically, thereby increasing its power of resistance, to an extent of at least 40 per cent. The first girder submitted to test snapped on a strain of 15½ tons; at 10 tons the deflection was imperceptible; at 12½ it was an inch and a third, and the set the fifth of an inch. The second girder had tests applied to it up to 30 tons, when it twisted in the centre; at 18 tons the deflection was an inch, and the permanent set the tenth of an inch; at 20 the deflection was 1·84 inch, and the set one-sixth; at 22 one and a third, with a set of one-fourth; at 24, 1½ and one-third set; at 26 tons the deflection was one and three-fourths, and at 28 two and a third, and 9-10ths of an inch set. At 30 it broke down by twisting.

HISTORY OF NAIL-MAKING BY MACHINERY.

At the last meeting of the Manchester Literary and Philosophical Society, Mr. J. P. Joule, LL.D., F.R.S., Vice-President, in the chair, a paper was read by Mr. J. C. Dyer. The following is an abstract:—"About the beginning of this century the great consumption of nails in America in wood buildings, and the high rate of skilled labour, had led to many attempts to make nails by a more summary process than that of the hammer and anvil, used for making those imported from England. Those called 'cut nails' were made by cutting angular slips from iron plates by the common shears, and the heads were made by a separate process of the die and hammer, worked by hand; and to unite these two operations in one machine was the object sought. For this purpose a machine was invented and patented by Mr. J. Odiorne, and another machine by Mr. Jacob Perkins, about the year 1806. These two patents, though for the same object, differed so far in construction that they were held to be distinct inventions. A third machine was invented by Mr. Reed, which, however, was a combination of the former two, and I believe was not held valid as a patent. In 1810, Messrs. Wells and Co., of the Charles River Iron-works, near Boston, having arranged with the patentees, sent out models of the nail machine to me in London, to be patented for our joint account. The operations of the machines were as follow:—1. Feeding-plates, of the width and thickness to form the nails, as pushed endwise over a fixed cutter, against a stop under the traversing cutter, and at such angle with the line of the cutters as to give the severed nail the head and point ends, and the plates turned over between each successive cut. 2. A fixed gripping die is placed just under the fixed cutter, the face of it and the cutter being in the same line, and the counter die moves forward to bring both together, so as to hold the nails firmly, a portion of the large end standing out beyond the dies to form the heads of the nails. 3. The heading die then advances and presses the end into the 'rose,' 'clasp,' or 'clout' heads. Success or failure often depends upon slight changes in power-driven machines. These nail machines answered very well for large nails, but failed as applied to very small ones, but as a means of saving the labour applied to making tacks and very small nails, it became important to adapt the machines to them also. This object, after some time, I succeeded in accomplishing, and thereby rendered the patent nail manufactory, established under the patents for the original invention and the improvements on it, a success. The average rate of working was about 100 per minute for nails and 120 per minute for tacks. In after practice the tack machines averaged about 80,000 a day, whilst the best hand-workers made about 1,200 to 1,400 a day. Each machine was tended by a youth, much like those employed in hand-making, so that one hand with the machine turned out as many tacks per day as would require about 60 hands working with hammer and anvil. Some of the movements in these nail machines have since been adopted, and found very efficient in riveting machines and others of recent invention."

Things Talked About.

We are now told officially that the disastrous loss of the *London* was mainly caused by the sea pouring into the vessel through the hatchway opening into the engine-room and putting out the fires; but Mr. Traill, the magistrate, and the nautical assessors who conducted the inquiry, suggest that, probably, "the same violent action of the sea which carried away the skylight might have caused some other unobserved injury to the ship." The practice of stowing a vast mass of coal on deck, and going to sea with all the top gear aloft, is condemned. Altogether, the report is well worth the earnest attention of owners and captains, and, we may add, of the public generally. One valuable practical suggestion is made—"If the deep-load line were permanently marked on all vessels, there would not be occasion to deplore the annual loss of life which occurs from presumed overloading."

The cattle plague is increasing, meat is dear, and yet a working man—in Glasgow, at least—may get a good dinner cheaply. The manager of the Great Western Cooking Depôt in that town reports that—"On the first three days of January we had repeatedly to close the doors of several of our principal branches, being quite unable to accommodate the large number of visitors who preferred the refreshments we supplied to the attractions of the public-house. The receipts for these three days

alone amounted to £721 12s.; and when I state that this involved the service and cleaning of upwards of half a million of separate articles of crockery, some idea may be formed of the extent of our labours. To give a familiar illustration—if all the persons who dined in the Great Western Cooking Depôt on these three days had been seated at one dining-table, it would have extended in one continuous line from Glasgow to Edinburgh, a distance of more than forty miles." A hot dinner of good meat, potatoes, and plum-pudding is provided for—what do our readers think?—exactly fourpence-halfpenny, and for another penny, a large cup of tea or coffee can be added. A sixpenny plate of meat is not quite unknown to Londoners, and its merits are not usually conspicuous. The cheap cook-shops of the metropolis are cheap indeed, but too often nasty into the bargain. "Of course," some persons may be disposed to say, "the Glasgow Cooking Depôt is supported by benevolence, and tradesmen must live, and to do that, must make a profit on the things they supply." Quite right, that latter clause of the sentence; but the Cooking Depôt happens to be self-supporting, and to yield a fair profit besides of nearly £890, after paying 5 per cent. interest for cash advanced to start the Depôt. A good dinner, then, can be had for less than sixpence; and if in Glasgow, why not in London and other large towns?

We all remember that, during the cotton famine of 1863-4, various public works were undertaken in the manufacturing districts, for the purpose of providing employment for the hands thrown out of work. It seems strange to say that we are gratified in learning from an official source that these works have been, for the last nine months, nearly at a standstill; but as that fact implies that labour has returned to its proper channel, and that the renewed activity of the mills has afforded fitter employment to the skilled workmen, it is really a matter for congratulation. But they did good work while employed on public works. Up to the end of December last, 515,833 lineal yards, or 293 miles, of main sewers and drains had been laid, and were in working order. The total area of paving and other works of street and highway improvement completed at the close of the year, was 1,913,685 superficial yards, or about 395 acres; the total length of these streets and highways being 236,326 lineal yards, or about 162 miles. Of the water-works several are already completed. The public parks and cemeteries are rapidly approaching completion, the Alexandra Park, at Oldham, having been opened last summer. This speaks well for English pluck. The brave men of Lancashire would not sit down and starve despondingly when work was to be obtained, however strange to their former habits. When the bobbin failed, the pickaxe was grasped manfully; and in twelve of the principal towns, earned £226,884 for themselves by honest hard work. A gratifying fact is that during all that time of trouble, "no disturbance or tumult troubled the peace and order of the district." A good argument, that, for giving the working classes a more potent voice in the government of the country.

The secretary of the Society of Acts is disposed to look despondingly upon the result of the last year's competition for prizes by workmen. In 1863, prizes to the amount of £162 were offered, seventy works sent in, and £109 out of the £162 were taken by the competitors. In 1864 the offered prizes amounted to £623; the works sent in numbered ninety-six, and the amount taken was £274. In 1865 the prizes tendered amounted to £666, of which £174 was distributed, and sixty-one specimens of work were exhibited. But Mr. H. Cole, of the South Kensington Museum, answered the secretary by saying, that though the number of specimens of art work sent in had diminished, yet the quality of the work was higher. Hitherto the competition has been limited to works executed by men in their leisure time, and not in the way of trade for an employer; and we ought to take into account the increased dearness of the necessaries of life, which renders it almost imperative that the workman should devote all his time to immediately remunerative work.

The active competition with English iron-workers by continental firms, to which we have more than once alluded, is having its effect on trade questions at home. The men employed by the Palmer Iron Shipbuilding Company have lately asked for a diminution of the hours of labour by one-tenth, without any corresponding diminution of wages. A meeting for consultation, attended by the directors of the company and about 2,000 of the workmen, has taken place, and an excellent spirit prevailed throughout. Mr. Palmer, the chairman of the company, addressed the men, showing that the rate of wages paid on the Tyne side was really higher than on the Clyde, the Mersey, or the Thames. If they virtually raised the rate of wages, by reducing the hours of working, competition would become impossible, and they would be left isolated. Besides, "competition was not only a national, but had become a continental question. France and Belgium especially were competing with us, and in every way the trial was a strong one. The measure asked for would fatally embarrass their position, and he begged they would be patient and not press upon employers what they could not by any possibility concede. This raising of wages by 10 per cent. would lessen the productive power of the district in a like degree, and just in proportion as the power of production in this country was diminished the prosperity of the foreigner would be increased." The men appeared to be struck with the force of the reasoning, and ultimately agreed to return to work, and that six of their number should meet six of the employers, and calmly canvass the whole question.

A few items respecting foreign industry in other branches of manufacture are interesting. We hear that the manufacture of French gloves has increased considerably for the last few years. In the year 1837 the gloves exported were estimated at 5,516,600f. Their value increased to 25,000,000f. in 1849, and to 30,900,000f. in 1853, and is still increasing.

The watchmakers of Clerkenwell and Coventry know well what foreign competition means, and they must prepare for a keen struggle. The French town Besançon competes successfully with Geneva in making watches, and the produce of the former town is in many places preferred to that of the latter. There were 91,595 gold and 200,418 silver watches manufactured at Besançon during the year 1865.

The London operative coachmakers, who, as yet, have little to fear from foreign competition, are endeavouring to obtain a half-holiday on Saturdays. A meeting on the subject, at St. Martin's Hall, with the Earl of Shaftesbury in the chair, was well attended, and the resolutions unanimously and enthusiastically carried. It was stated that of the 270 masters who had been applied to in the matter, 249 had sent back no reply; 13 were willing to give the half-holiday; 3 conditionally so; and 5 disapproved of it.

There is reason to believe that a strike in the building trades of Manchester is imminent. The men claim higher wages; and the masters, on their side, make a statement of their grievances. We shall be glad to hear that as good a spirit of mutual forbearance exists at Manchester as on the Tyne side. A large meeting of the masters in the building trades throughout the country is, we understand, to be held in Manchester next month, with a view to adopt some common action in the way of resisting encroachments. They say that the existing trade restrictions so hamper them that they are unable to carry on their business with "either pleasure or profit."

An ugly feature of the disputes in the building trades has appeared at Birmingham. A large firm employed a man who did not belong to the trade society, and were threatened that, unless they discharged the man, all the other workmen would leave. The man who was the medium of conveying these threats, and who had induced the other men to quit their work at a quarter of a day's notice, has been sent to prison for six months.

Another unpleasant matter is reported from Cornwall. There has been a strike at the Caradon, Marke Valley, and Drake Walls Mines; and at the latter mine, one man who wished to continue at work was "rode on a rail" through the village. In this case, too, the law will be appealed to. We are sorry to hear that there is a prospect of a very disastrous dispute throughout the district, the managers being firm on their side, and the men equally determined. So serious is the aspect of affairs, that not only in Cornwall, but in some parts of Devonshire also, the military have been called out.

The London broad silk-weavers have held a meeting to receive the report of the deputation appointed to wait on the President of the Board of Trade, and represent the depressed condition of the silk-weavers, and the great reduction in the price now paid for weaving compared with the current rate some years since. They solicited the support of the Government in asking for a Parliamentary Committee. Mr. Milner Gibson replied that he could not interfere between master and men. That is the reply which may always be expected. In this case, again, it is foreign talent and foreign enterprise which are making their way into our markets. The masters say that the effect of the late commercial treaties has been to render them unable to compete, except by a reduction of wages. A Silk-weaving Co-operative Company is talked about.

A "leading" bricklayer, employed by Messrs. Simms and Marten in the erection of a new church at South Kensington, summoned his employers, on Thursday last, for £1 5s. 10d., being the amount of four days' wages. The defence was, that he was not entitled to the money, as, during the time, the weather did not permit of his working. The question to decide was, whether he, being a leading, or foreman bricklayer, was subject to dismissal at an hour's notice, as, by the trade regulations, ordinary bricklayers are. Sir Eardley Wilmott, Judge of the Brompton County Court, decided that the plaintiff could not recover; but said he should adjudge that even hourly contracts must be considered as running during the entire day, and, therefore, gave the plaintiff a verdict for 7s., one day's pay, with costs.

Small employers are often annoyed by the delay and difficulty experienced in the collection of money owing to them, and the want of which often seriously embarrasses them. It may be the means of saving time if we tell them that, for the payment of 5 per cent. on sums under £20, the General Advance and Debt Recovery Company, 21, Harp Lane, Great Tower Street, will relieve them of all trouble in the matter, and even, when the security is good, at once make an advance on it.

The letter-carriers are preparing for a great meeting, to decide upon the most effectual means of obtaining an advance of wages, and an alteration in the scale by which promotion is now regulated. The manner in which the claims of the men have been treated by the Government has aroused a very strong feeling.

General Information.

WORKING MEN'S CLUBS AND INSTITUTES.

Working Men's Club and Institute Union.—The Council of the Union beg to give notice to members of London clubs that they have fixed on the 12th of March as the last day for sending in names for the chess competition formerly announced. It is proposed that the competition should take place in the office of the Union, 150, Strand, on Tuesday, the 20th inst., at 8 p.m. The prize, as before stated, will be books to the value of £2. —The council desire also to give notice that their visiting agent, Mr. Pocklington, will now be happy to aid the secretaries and committees of clubs in preparing for united summer excursions, cricket-matches, rowing-matches, &c. The length of time necessary to make arrangements for these trips, especially in collecting weekly contributions, renders it necessary to lose no time in commencing operations. When several clubs join together for an excursion, it not only makes it less expensive, but also secures that good fellowship between them which is extremely valuable; and the services of the visiting agent may be found very useful in enabling the secretaries to arrange for such joint excursions, if he can commence, in good time, to inform the committees of their mutual views and wishes. The council would also suggest to the secretaries of district unions the desirableness of commencing similar preparations at once in their various localities.

Appeal to Club Committees and Secretaries from the Council of the Union.—The council, once more, respectfully request those secretaries and committees who have not yet filled up the "Form" which was forwarded to them at the beginning of the year, with particulars of their respective clubs, to consider whether it is not well to take that small amount of trouble for the common good. The council again repeat that not the slightest interference with the liberty or management of individual clubs is even remotely contemplated by this or any measures adopted by the union. That union exists to aid, not to control; and its power of aiding both particular clubs and the movement generally is necessarily much promoted by gaining an accurate knowledge of the working of the various societies, of the success or failure of their various plans of usefulness, and of the extent to which they are able and willing to promote each other's welfare. The council conceive that to give this information is only a debt which each club owes to society generally; for each has received assistance from disinterested friends in its own formation and career—each has benefited largely by the interest which this Union has awakened throughout the country on behalf of Working Men's Clubs and Institutes—each, therefore, may reasonably be expected to contribute gladly, especially what costs nothing but a little time, towards the benefit of the whole movement. Should this meet the eye of any secretary who may have mislaid the form sent him, we shall gladly send him another on being informed thereof; and perhaps the committees of all the clubs in which the Working Man is read, would kindly inquire if the return from themselves has yet been sent in. The council doubt not that, both in this and all other opportunities of useful co-operation, the members of Working Men's Clubs, generally, will manifest the same spirit of sympathy for other societies of a similar kind which has nobly marked their conduct in other cases, and which has proved how well English working men understand the great truth that, whether people like it or not, they and their organisations are indissolubly bound together for mutual good or evil so long as they continue to exist. The council take this opportunity of cordially thanking those gentlemen who have already forwarded their returns. Henry Solly.

The Chelsea Working Men's Club.—The annual festival of this club was recently held at the Vestry Hall, King's Road, and, though the weather was most unpropitious, the gathering of members and their friends was most numerous. Tea was on the table at six o'clock, when about 300 sat down. After the tea, the large hall was prepared for a vocal and instrumental concert, which had been arranged for the further entertainment of the club. The whole was under the able direction of Mr. James Radermacher, of whose earnest and indefatigable labours too much praise cannot be spoken. Miss Kate Montgomery presided most ably at the pianoforte, which was one of Erard's best, and there was a good selection of songs and recitations. A very pointed and appropriate address had been written for the occasion by Mr. Wyeth, one of the members, and was spoken by Mr. C. Lacey with considerable effect. The hall was well filled, and the greatest satisfaction was manifested.—[We much regret that we have not hitherto found an opportunity of inserting the above; but we do so now, though it is rather after date, both because the members of the club have manfully exerted themselves for its prosperity, and because they took the trouble—as we should be glad if all other clubs would do—to make us acquainted

with their doings. It is also an interesting and noteworthy fact in connection with this club, that the Literary Institution just opposite to it, so far from showing any unworthy jealousy of its humbler sister, has always lent its valuable help to promote the prosperity of the club.]

INDUSTRIAL EXHIBITION.

City of London Working Classes' Industrial Exhibition.—For some days previous to the opening of this important exhibition, the Guildhall was the scene of extensive preparations in connection with the inaugural ceremony, which was performed on Tuesday last, by the Lord Mayor, the programme including a grand morning concert, at which Mr. Benedict presided. It is the first exhibition of the kind held in the City proper; and the Guildhall, in its newly restored and decorated state, lends it additional interest and attraction. It contains about 1,000 articles in all, carefully selected and classified, including architectural models, specimens of carving and turning in wood and other materials, drawings in water-colours, crayons, and pencil, wood engraving, decorative furniture and cabinet work, graining and marbling, glass work, heraldry, illuminated writing, inventions for promoting domestic economy, working in leather, naval architecture, photography, and many other subjects. Between 1,400 and 1,500 offers to contribute articles have been made to the managing committee, but they were obliged to limit the number to about 1,000, and the subjects have been selected with a strict regard to their intrinsic interest. A guarantee fund to a considerable amount, and to which several of the City merchants are understood to have subscribed largely, has been provided to meet the attendant expenses, and the Corporation of London has placed their ancient hall at the disposal of the committee, entirely free of cost, imposing only on them such conditions as may be necessary to ensure its safety from accident. The interior of the hall and roof has been tastefully decorated with banners, and a grand organ was put up expressly for the concert on Tuesday. The prices of tickets for the concert were 7s. 6d. and 5s. The exhibition will last five weeks, and be open from ten till five daily (Sundays excepted), and from six till nine every evening, the price for admission being 1s. in the daytime, and 6d. in the evening.

Co-operative Intelligence.

Chester-le-Street Co-operative and Industrial Society (Limited).—Mr. Wilkinson, the secretary, writes:—"It is now rather more than three years and three months since eight of us working men in the village met together to form a Co-operative Store. We managed to raise 4s. amongst us. Of course, a treasurer and secretary were appointed, and the rest were all to be committee men. Our next meeting was about the same, 4s.; but the third was better, for we had an addition of two recruits, and made our capital up to £3 10s. We secured the licence, and commenced business in a small back room of one of the members; and by strict attention and economy (for we saved all our old newspapers, and were our own grocers after leaving our employment at nights), our receipts for the first quarter were £36. Our thirteenth quarterly meeting was held in the National School-room on Saturday evening, 17th Feb., Mr. Jonathan Wilkinson, from North Hetton, in the chair, who, after a few pithy remarks on the benefits to be derived from Co-operation, called on the secretary, James Wilkinson, to read the report, which showed the receipts to be £2,128 0s. 10½d., being an increase over the previous quarter of £532 17s. 6d., allowed 5 per cent. on all paid-up shares, reduced the fixed £17, added £30 to the reserve fund, and a dividend on members' purchases of 2s. to the £1. A very pleasant evening was spent, some of the new members expressing their feelings regarding the excellent quality and good weight of the goods from the store."

Elsecar.—Following the example of several neighbouring places, it has been decided to establish a cheap meat association at Elsecar, near Barnsley, upon the Co-operative principle. The shares are £1 each, many of which are already taken up.

Hindley Friendly Co-operative Society (Limited).—On Monday evening, the 26th of February, the Hindley Friendly Co-operative Society held a tea party in the Independent Methodist Chapel, New Springs, to celebrate the opening of a new branch store at that place. Mr. James Winterbottom, the worthy president of the society, occupied the chair, and after having made a few brief remarks, called upon the secretary to read the report, from which it appears that the society has been established since May, 1858, having commenced operations with the small capital of 13s., which had been contributed by thirteen members. In July of the same year the number of members had increased to seventy, and the capital to £200. The business had increased in like proportion—in fact, so much so, that it is found necessary to take larger and more commodious premises. Accordingly, a remove was made, and the business having again outgrown the accommodation, they determined to build new stores, a public hall, and free reading-room, which were completed in June, 1864, at a cost of upwards of £2,361. In April of last year they again decided to extend their business, and resolved to build a branch store at New Springs. This branch was now completed, at a cost of about £700, and it was for the purpose of inaugurating that building they had assembled on that evening. From the statistics which follow, it appears that during the past year an increase in sales had taken place to the extent of £608 10s. 7d. as compared with the year 1863; that in 1865 the net profits amounted to £772 18s. 2d., of which sum £226 17s. 2d. had been paid for interest, £478 1s. 6d. for dividends, and £61 14s. for depreciation of fixed stock. The report, which was listened to with marked attention, concluded by observing that, should the profits allow, it was their intention also to open a free reading-room in connection with the branch store, as a means of furthering the education of the working classes, and more especially of their members, an announcement which was received with applause. The New Springs glee party having given "Hail, smiling morn" very creditably, the chairman introduced Mr. Fam, of Manchester, who said, had he known that he should have been called upon to address them that night, he might have been induced to take a memoranda of what he had said when with them on a former occasion, so as not to give a repetition; but he was glad to say that he could not speak too much (even in one strain) in favour of Co-operation. He congratulated the New Springs people on having a store in their village, and trusted they would all co-operate together, and then sure success would attend their stores. The Revs. Harvey Phillips and John Dickenson, of Wigan, having addressed the meeting, votes of thanks to the chairman, speakers, and other officials, terminated the proceedings.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

"BUILT TO SELL."

To the Editor of the Working Man.

Sir,—Will you kindly place the following cautions before your readers who invest in "To Let or Sell" houses?

1st. Ascertain that the house is not built on made soil, where the gravel has been dug out and sold. 2nd. That it has deep, concrete foundations. 3rd. That all the materials are new, and the bricks hard "stocks." 4th. That no iron chimney bars, supporting the arch, are absent. 5th. That the drainage is distinct and separate, properly connected with the main sewer. 6th. The strength of joists, quarterings, lintels, rafters; thickness of doors, shutters, floor-boards, skirtings, shelving—in short, the quality and quantity of timber used. It is truly frightful to see how slightly houses are timbered. 7th. Whether the grates, locks, ironmongery, blinds, and other fittings are of the very cheapest description—unfit for wear. 8th. That it has a trap-door fire-escape to roof. 9th. Avoid zinc gutters, cisterns, flats, &c. as zinc is a very temporary affair. Insist upon lead or stone cisterns, &c. 10th. If the parish has not taken the road, have money security for its cost from the seller—it may save you £10 to £30. 11th. Find out if it is an estate where any scamping is allowed, to create heavy ground-rents. 12th. Investigate the title thoroughly. Beware of needy or bankrupt vendors, and improved ground-rents. Lastly. Before purchase or deposit, insist upon a legal warranty, with full specifications attached, subject to penalties if false.

Soliciting your kind co-operation to suppress "slop" building of structures, run up "to let and not to last," of which so many hundred samples can be viewed in the "speculative" building sites N., S., E., W., I am, Sir, your obliged reader, Wm. Truman.

3, Maryon Villas, Green Lanes, N., 22nd Feb., 1866.

WORKING MEN'S HALLS.

To the Editor of the Working Man.

Sir,—Having read the various articles on Working Men's Clubs, in your valuable paper, I wish to suggest a plan by which working men's halls might be built, and working men's halls established. In our village there are about fourteen lodges, or benefit societies, which average about £140 for each society. Our society has one share paid up in the building society—that, is £66.

If each of these societies were to invest their money in building a working men's hall, on the limited liability principle, in £1 shares, each lodge or society taking, say, sixty or seventy, or more, shares, according to their ability, and let the public have the chance of taking shares in the building; it would be a great boon to the lodges—by removing them from the public-house—and to the workman in general.

It is well known that public-house lodge-meetings are a great evil in many ways. For instance, it is very common at the half-yearly meetings, when they pay the rent for the lodge-room, to ask for something back for drink. Sometimes I have known the whole of the rent sent back, on condition that they would put a like sum to it and spend it all in drink. Now this is a great evil. Then, when a new member is made, they will, perhaps, ask him for his "footing," and they will all subscribe something to it and spend it in drink. This is another evil.

Then, again, there are men, and a good many of them, who will not go to the meetings, owing to their being held at the public-house. Now this is a very great evil, as it prevents that friendly intercourse which ought to exist in all friendly societies.

I should like to hear some of your more able correspondents' opinions on this subject.—Believe me, yours truly,

Bramley, Feb. 22nd, 1866. Bramley.

TO CORRESPONDENTS.

The Birmingham Exhibition.—A contributor who sends us a long letter on this subject, is requested to furnish us with his name and address. Imputations of such a serious character cannot be made on the authority of an anonymous writer.

H. F.—To solder steel upon steel, the following ingredients, finely pulverised, are employed:—Boracic acid, 41 parts; dried sea-salt, 35 parts; yellow prussiate of potassa, 15 parts; dried carbonate of soda, 8 parts. Another preparation consists of a solution of phosphorus in nitric acid, evaporate the solution to the consistence of a thick syrup, and add one or two volumes of alcohol at 80 degrees; it is applied to the iron or steel with a brush, or the metal may be dipped into it.

H. Collison.—You had better make inquiries on the spot of some one who occupies a situation similar to that you desire.

Wm. Telesfield.—Muriatic acid gas is not recognised by chemists of the present day. That term is obsolete. The other was a typographical error.

M. E.—Soluble glass may be obtained of almost every operative chemist; hydraulic lime of the dealers in limes for building.

A. L.—Blue printing-ink is made by grinding, on a marble slab, balsam of capivi, 36 parts; Prussian blue, or ultramarine, from 5 to 13 parts, according to intensity required; rosin soap, 12 parts. The longer the grinding is continued the better the colour of the ink. Your suggestion cannot be adopted, on account of the space being occupied by woodcuts.

Watson, H.—You are working at the wrong end. No kind of cowl or chimney-pot will cure a smoky chimney. You must contract the throat above the grate as much as possible, and secure a good supply of air to the fire.

John Bennett.—The reed of the harmonium consists simply of a strip of sheet brass, a full tenth of an inch thick, some two or three inches wide, which is placed on the edges and on one face. A slot is cut in it by a small circular cutter, and the ragged edge of the cut removed by a peculiarly constructed file. The tongue is sawn out by means of a series of delicate cutters, set in a wheel. Success depends upon the workmanship and experience.

G. Ascough.—To answer all your questions would require a treatise, and occupy more space than we can devote to the subject. Consult an encyclopædia, or "Days at Factories," by J. Thorne.

S. J. Cooper.—Replies to your questions would occupy more space than can be spared to the subject in these columns. The questions have been discussed in various magazines. Consult Hone's "Every-day Book."

Cuth Bushey.—1. Tackett's "Bookbinding" will supply the information you require. 2. Bookbinders' tools may be obtained at any of the large tool-shops. 3. The work will be published in monthly parts shortly. As to the other books named, no answer can be given at present.

Martin S.—The address of the agent for the sale of the paraffine lamp, described in No. 1 of the Working Man, may be found in our advertising columns.

F. J. O. (Blackheath).—We do not share our correspondent's conviction that the jug is an authentic relic, and therefore beg to decline the photograph.

A Mason (York).—There is scarcely a large town where good plaster casts from the best modern and antique sculpture cannot be obtained. In London, Brucciani's, in Great Russell Street, Drury Lane, is a large and first-class establishment.

O. P.—Salt of tartar is an old name for sub-carbonate of potassa. Salts of lemon is a compound of oxalic acid and potassa; it is not obtained from lemons, the acid of which is called *citric*.

Dayton, W.—The best mode of treating the wooden posts is to char that portion which is buried in the ground; this effectually preserves them against decay.

Amer.—The intensity and volume of the blowpipe flame may be modified by reducing the pressure and the size of the aperture in the nozzle of the blowpipe.

S. B. T.—A typographical error occurred in the reply to your inquiry in No. 8; for *carbonic* acid read *carbolic*.

W. S.—Zinc added to copper produces brass; tin and copper yield bronze, gun metal, &c., according to the proportions of each metal.

J. O. A.—Nothing is required to be done to the glycerined clay model to fit it for casting off. If any difficulty occurs, reduce the quantity of glycerine.

J. H., who inquired for particulars of glass-gilding, is informed that a letter will be forwarded to him on receipt of stamped addressed envelope.

A. B. D.—The information you require may be found in the articles on "Apprenticeship," and "Master and Servant," which have appeared in the Working Man.

"Overtime" is evidently under a misapprehension as to the indenture containing a covenant on the part of the apprentice, "to serve his master faithfully *day and night*." What is expressed in the indenture is, that he "shall not absent himself from his master's service day or night *unlawfully*." There is no law laid down as to "overtime," in the case of an apprentice. A master is bound, by the general principles of the law, not to task his apprentice unreasonably, or beyond his strength, and in case of grievance, the apprentice has his remedy by an appeal to the magistrates, as pointed out in our second article.

Baker and Baker's True UNCOLOURED TEAS are imported and sold Free from all Adulteration; they can, therefore, be relied on for Uniform Good Quality, Fine Flavour, and Lasting Strength. Sold by Chemists, Confectioners, &c., in most Towns. [7

Government of South Australia EMIGRATION DEPARTMENT.

FREE PASSAGES are granted to South Australia, in vessels chartered expressly by H.M. Emigration Commissioners, to PLOUGHMEN, farm servants, miners, masons, bricklayers, wheelwrights, blacksmiths, sawyers, carpenters, gardeners, grooms, collar and harness makers, country shoemakers, &c.

ALSO TO SINGLE FEMALE DOMESTIC SERVANTS.

Further particulars and forms of application may be obtained at the office of the Emigration Agent for the Government of South Australia, 5, Copthall Court, London, E.C. [8

Government Emigration to NEW ZEALAND.

FREE PASSAGES to CANTERBURY, N.Z., are granted by the Provincial Government to female domestic servants, and Assisted Passages to farm workmen and certain descriptions of mechanics.

Particulars of conditions may be obtained, personally or by letter.

JOHN MARSHMAN, Emigration Agent for Canterbury, 16, Charing Cross, London, S.W.

Emigration.—Passages to all PARTS OF THE WORLD.—Every information free of charge. Best ships. Cheapest rates. Goods shipped and insured.—F. BASSIL, 139, Leadenhall Street, London.

CHEAPEST EMIGRATION TO AMERICA, £5.

New York, by Steam, WEEKLY, £5 5s., cabin, £15 15s.; and Portland, £6; Baltimore, £5 5s., cabin, £15 15s.; New Orleans, £6 6s., cabin, £25. Sailing Ships to New York, £3 3s.

R. MONTGOMERIE and CO., 5, Ingram Court, Fenchurch Street, E.C. [9

BROWN AND POLSON'S Patent Corn Flour recommended for CHILDREN'S DIET. [6

E. Bourdon's Patent Gauges. GIFFARD'S INJECTOR, FOR FEEDING STEAM BOILERS. DIAMOND PAINT, FOR IRON AND WOOD WORK. *Particulars and Prices post free on application to* W. T. HENDRY AND CO., 73, QUEEN STREET, LONDON, E.C. [10

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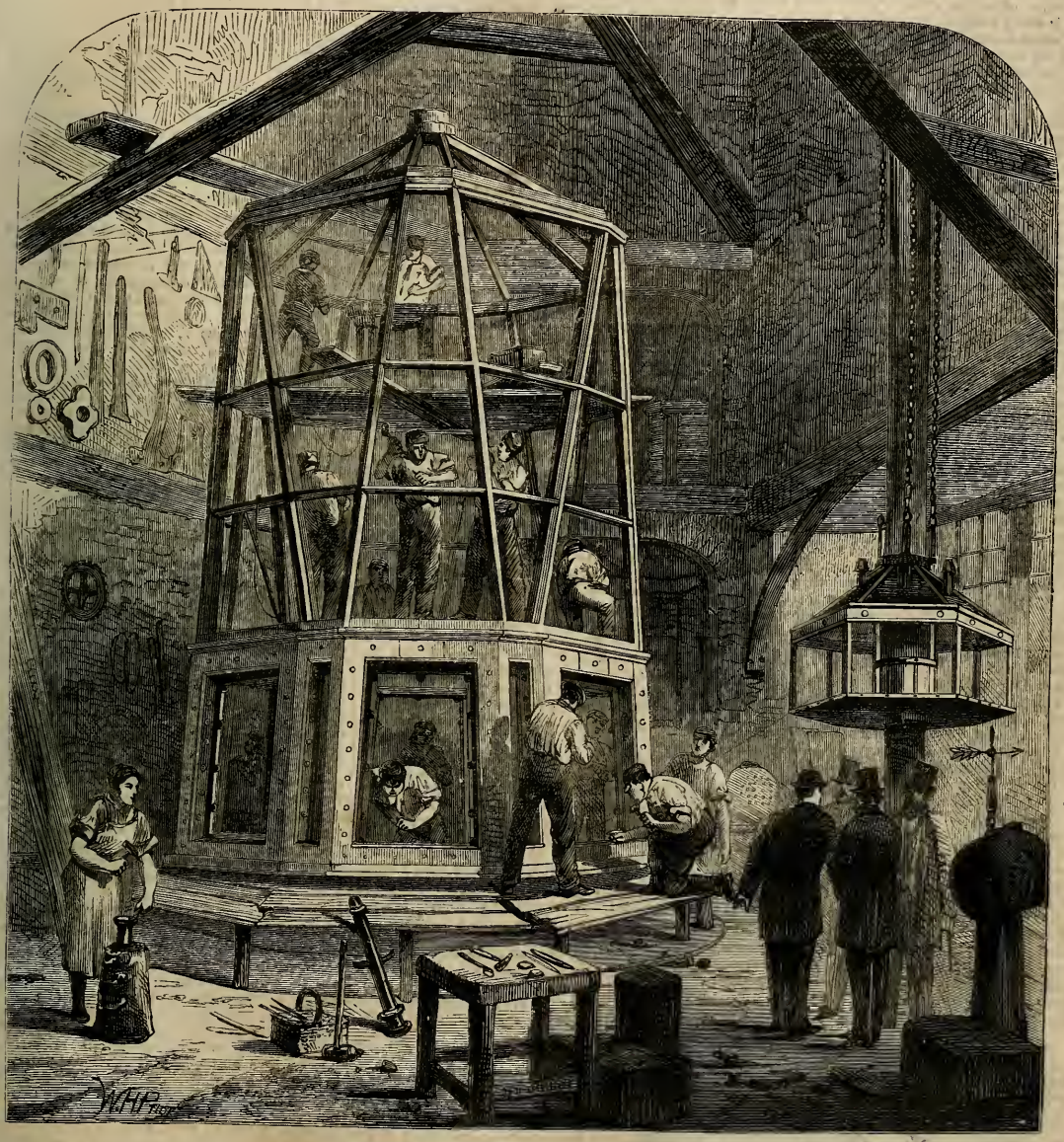
VOL. I.—No. 11.] SATURDAY, MARCH 17, 1866. {PRICE 2D. STAMPED, 3D.

THE WORKSHOPS OF THE WORLD.



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The Lighthouse Lantern Manufacture.

AMONG the numerous branches of our engineering and mechanical industry, none are more curious or more interesting than that connected with the production of those immense lanterns which crown the summits of the lofty beacons whose warning light bids the adventurous mariner beware of the dangers which lurk in their vicinity. The use of lighted beacons for the purpose of guiding or warning seamen approaching near a dangerous coast, is of great antiquity, the most celebrated lighthouse of ancient times being that erected about B.C. 283, in the reign of Ptolemy Philadelphus, on the island of Pharos, opposite to Alexandria; but it was not until a comparatively recent period that the methods of lighting employed in these structures were conducted upon anything like scientific principles. The lights were fed with oil, and in some cases reflectors of glass or polished metal were used, but no attempt was made to concentrate or economise the rays of light in such a manner that they should be rendered visible at the utmost possible distance at which a light could be perceived.

To effect these results, great improvements had to be effected, both in the construction of the lamp and in the arrangement of the glass windows which protected the lamp from the wind and rain. The light was required to burn with a steady and uniform flame, while, at the same time, it became obvious that the windows might be made something more than a mere protective covering; that they might be so constructed as to assist in concentrating and intensifying the rays of light emitted by the lamp or lamps. This led to the gradual adoption of the system of lighting now used in this and other countries.

The principal mode of lighting, as practised in this country, consists in placing a powerful Argand burner in the focus of a large parabolic reflector. This latter is made of silver strengthened with copper, or of copper strongly plated with silver, and is about three or four inches in focal length, and about twenty-one inches in diameter. It is of great importance that the sizes of the flame and the reflector should be scientifically adjusted, otherwise there would be a considerable waste of light. In France, the mode of lighting generally employed consists in placing a large Argand lamp, having four concentric wicks, and giving an extremely powerful light, in the centre of the lantern, a series of glass lenses, of peculiar construction, being scientifically arranged round the lamp. This gives a *refracted* instead of a *reflected* instrument to collect the light, and enables a single lamp or light to produce an effect otherwise obtainable only by the use of several. The lenses employed in this manner are each about thirty inches in diameter, and having a peculiarly arranged fluted surface, difficult to describe without the assistance of diagrams.

The reflecting lights are known as *catoptric* lights, while those in which lenses are employed are called *dioptric* lights. Each system has its special advantages, but the dioptric method is considered to be the most efficient.

Considerable ingenuity is required in devising the various peculiarities by means of which mariners are enabled to distinguish the various lighthouses from each other. In some a steady light is exhibited, which may be coloured by the use of coloured glass; in others the light is intermittent, that is, it is made, by means of machinery, to appear at certain regulated intervals; in fact, the varieties of lights are almost endless.

The construction of the framework of the lantern is scarcely less important than that of the light. Unless made of strong and sound materials, and finished in a workmanlike manner, it would not long withstand the fury of the destructive gales which so frequently sweep along the coast. In our illustration we have represented the ordinary method of constructing the lantern, the metals employed being chiefly gun-metal and iron. All the parts have to be made and put together in the workshop, after which the lantern is taken to pieces for the purpose of being more easily conveyed to its destined locality.

The workshop represented by us forms a portion of the establishment of Messrs. Wilkins and Co., the celebrated lighthouse engineers, of Long Acre, London. The smaller lantern shown in the illustration is intended to be placed around the mast of a light-ship, of which we have many, such as the well-known floating light at the Nore, in places where the navigation is intricate, on account of sand-banks and shoals, as at the entrance of large tidal rivers, like the Thames or Mersey. The pedestal of the large lantern depicted by us is made out of cast-iron, the framing of gun-metal, and the roof of copper; the whole being surmounted with a copper ball and vane—shown in the engraving—for purposes of ventilation.

Employment for Women in Germany.—An association has been formed in Berlin to promote the industrial employment of women, especially of those belonging to the middle classes of society. Although in England a similar undertaking has been affiliated to the National Association for the Promotion of Social Science, in the metropolis of Prussia the new movement is still regarded by many persons as likely to alienate women from their "manifest destiny." A hearty meed of praise is due to the eminent men who have placed themselves at the head of the Berlin association. A still larger share must be bestowed on her Royal Highness the Princess Royal, for openly professing a great interest in the object of the society, and for contributing a considerable sum of money to its funds. In the kingdom of Würtemberg, by an order of the Government recently issued, women are admitted to appointments in the postal service.

Employers and Employed.

Having explained, in our article entitled "Master and Servant,"* the chief principles of the law concerning the contract or engagement entered into between employer and employed, we have now to consider

II.—THE DUTIES AND LIABILITIES OF BOTH PARTIES

during the continuance of the service.

The first duty which civil as well as moral law exacts from the servant, is proper and faithful performance of the service entered upon. He must show himself *competent* to perform his work, and do it, not in a careless or negligent manner, but with due diligence and attention. He is also bound to obey the master's commands, so far as they relate to the employment, and, if he be an in-door servant, must conform to the rules of the establishment. Any breach of these conditions will justify the master in putting an abrupt termination to the engagement, and, if the case be a clear one, the law will uphold him in refusing to pay the servant the stipulated salary, or any portion of it.

It must be noted that the servant who has undertaken one description of service, cannot legally be called upon to perform another. To take, as an illustration, the case of domestic service, a person engaged as coachman cannot be required to act as footman; and so with respect to any other class of employment. He may, of course, undertake other duties by his own consent; but if he should do so simply as a matter of temporary accommodation to the master, he will not be bound to perform them during the remainder of the engagement.

A servant must exercise due care over his master's goods. He is liable to the master, not only for wilful damage, but also for injury to his property through gross negligence. But it is a mistake to suppose that the law gives the master power to deduct the amount of damage from the servant's wages. His only legal remedy is by *action*, which may be brought in the County Court. Nevertheless, practically the matter remains much the same as if it were left in the master's hands in the first instance; for the master may *withhold* the servant's wages if he refuse to allow the deduction, and compel him to take legal steps to recover them. He may then bring a counter action for compensation, against the claim for wages; and if, as is probable, each party has to pay a part of the costs, both will be the losers by resorting to legal process. Therefore, it is not the servant's interest to refuse to allow the deduction, if he be fairly liable to it, and the amount be reasonably estimated.

Finally, as regards the servant, if he involve the master in adverse proceedings through any careless or illegal act of his own, he is bound to recompense or indemnify the master for the expense to which he may be put in consequence. For instance, if, by negligently leaving a grating open, he causes injury to a passer-by, who brings an action for damages against the master, the servant is liable to repay to the master the damages awarded.

It is the first duty of the master to pay his servant fair remuneration for the service, or such remuneration as may have been agreed upon; and next, to afford him reasonable protection against injury. With respect to in-door servants, the master must supply them with proper shelter and necessaries. In the case of sickness, he is bound to continue to provide them with lodging and necessary food, but not with medical attendance.

A master is not entitled to inflict personal chastisement on his servant under any circumstances. Although the law allows moderate chastisement for misbehaviour in the case of an apprentice under age, it does not permit the infliction of such punishment upon a servant. If anything affords ground of displeasure, the master has his remedy in dismissal, which he has not in the case of an apprentice; and any corporal punishment of the servant is, therefore, an assault, for which the master is liable to action.

As to protection against injury, the master is bound to take every reasonable precaution to secure the safety, in life and limb, of his servant. He must not expose the servant to dangers of which he cannot be expected to be aware—for instance, by allowing him to work at machinery which the servant would presume to be safe, but which the master knows is unsafe. If the servant see, or be made acquainted with, a danger, and choose to continue his work notwithstanding, he does so at his own risk. But he may lawfully refuse to do any dangerous work; and if the master should persist in requiring it, the servant will not be debarred from the right to his wages by the refusal, so long as he may hold himself in readiness to perform his proper duties.

The Factory Act renders it incumbent on a master, in whose factory machinery may be employed, to fence such portions of that machinery as may be dangerous to those at work at it, or to passers-by. Any person who is injured through the absence of proper fencing may recover damages for the injury from the occupiers of the factory; but the master is not bound to keep machinery fenced while it is not in motion; and he is not liable for damages if the servant contributes to the injury by his own negligence.

If the master takes care that his servants are persons of proper skill and ordinary carefulness, he is not liable for any injury that one may receive by the negligence of another in a service which they are performing in common. The servant's remedy in such a case is against his fellow-servant. And if the servant discovers that he is exposed to danger by the incompetence or carelessness of another, and, nevertheless, continues to go on with the work, the master is not answerable for the consequences.

Corresponding to the duty of the servant to indemnify the master for the results of his own negligence, is that of the master to indemnify the servant for the consequences of any act done at his own bidding, and not in itself contrary to law. But if the servant do an illegal act, knowing its true character, he can claim no indemnity from the master. On the contrary, where such an act is performed by the master's instructions, both parties are liable to punishment.

A master is liable for the acts of his servant, even where he may not have given express instructions, but where such acts appear to have been done in the ordinary course of business known to and sanctioned by the master. In the case, for instance, of a fraud on the revenue committed under such circumstances, the master is answerable; and it may be, although this does not in all cases follow, that the servant also is amenable to the law.

As a general rule, however, the servant is liable, under the criminal law, for a wrongful act; but the master is not liable for the wilful act of his servant, done without his knowledge or consent, and not coming within the proper scope of the employment.

If a servant, in course of his ordinary occupation, or any other act of service, inflicts an injury upon any person by negligence—as in the case of the driver of a vehicle, who may run over a person in the streets—the master is liable in damages to the person injured; but he is not liable when that person, by the exercise of ordinary care, might have escaped the consequences of the servant's carelessness or misconduct.

A master is liable to third persons under contracts or engagements made by his servant, if that servant is acting with his authority, either express or implied. Express authority is where the authorisation is given in so many words; and authority is implied where, according to usual practice, the servant is understood to act on behalf of the master as his agent. A foreman, as we mentioned in our last paper, has implied authority to take on other workmen; a shopman has implied authority to warrant his master's goods; a "traveller" has implied authority to collect his master's debts. The master may relieve himself from his liability for any such acts, by notifying by public advertisement, or to those persons with whom he may deal, his refusal to recognise the servant as any longer an agent in his behalf. It is not sufficient merely to forbid the servant to act, without giving the public or the customers such notification.

With regard to a servant who may purchase goods for the master, if the latter has always been in the habit of paying ready money, he is not liable for what may have been obtained on credit without his written order. But if the master is known to send for the goods, sometimes with ready payment, and sometimes on credit, he is answerable for what his servant may obtain on credit, within a reasonable amount, whether it has been procured for his own use or not.

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* See page 118.

Where a servant has no authority to act for the master, either by express sanction or by common usage, the mere fact that he is a servant will not be sufficient to bind the master in any way for the engagements he may enter into. The servant is answerable in damages at the suit of the third parties for any undertaking so made without the master's consent.

In our next paper we shall explain the provisions of the law as to Wages.

A Sad Story.

BY A LANCASHIRE LAD.

Among the many methods promulgated for the relief of the operatives of Lancashire during the period of distress was that which was known as the emigration movement. Thousands of men, who had never before thought of quitting the land in which they had been born, were induced to accept offers which promised work and wages, if they would but cross the seas to more thinly-peopled countries. The emigration fever was never popular with those who cared most for the welfare of the poor. It was seen that the emigrant who was most likely to succeed in a new country, was the man who by his own energy and frugality had saved the means to carry him to his destination, and to make the sufficient, though rough home, with which he purposed starting in his fresh race after wealth and happiness; independent, and having thoroughly thought out what his new life was likely to be, prepared for its discomforts and hardships, he looks to his labour, backed by his little capital, to carry him through. Unfortunately, very many of the recent Lancashire emigrants were not of this character. In all things they were dependent. For the clothing they wore—for the means enabling them to reach the seaport whence the vessel was to sail—for their passage over the sea, they were dependent; when they landed, they were dependent, and, to a large extent, at the mercy of those who had charge of them. This utter dependence was sure to have considerable influence upon their character. Their friends at home watched their departure with sad forebodings, and they themselves, in many instances, could but see that they were jumping from a large to a greater evil. There was not much heart in their emigration. It was whilst this depopulation of Lancashire was going on that a local poet, using that dialect which Edwin Waugh and Benjamin Brierley had made so popular with the poor, essayed to put into rhyme the feelings of a sad old woman, whose son, with his wife and family, had gone off to Queensland. First, there was the farewell. The garrulous grandmother finds it especially hard to part with her grandchildren. Whatever else they may find in their new home, there will be no one to care for them as she would. Her notions of the far-off land, its flowers, its birds, and its sky, are odd, no doubt. She has heard something of how Christmas and Midsummer come together, and is puzzled. Looking at her little toddling pets, she says:—

"Ther'll nob'dy get yo daisies then,
Nor bonny blue bells poo, aw'm sure;
Nor make yo posy wreaths agen,
Nor twine wild roses int' yoar yure.
Ther'll nob'dy tak yo into th' clooff,
An' let yo romp an' marlock theer;
An' when yo'n fairly play'd enoof,
Ull teighl an' hug yo back, eh dear!

"Yo'll ne'er find swallows uppo th' wing,
Nor see th' three lucky pynarts fly;
Nor hearken th' bonny layrock sing,—
A dark spot ditherin i' th' blue sky.
Eawr pratty stars yo'll never see,
Aw amno sure yo'll see th' same moon;
Things mun be wrong, it seems to me,
Wheer th' winther days throng into June."

The emigrants go; month after month passes, and the old folks at home long for some news of the absent. At length a letter comes. It is as cheerful as can be expected, but does not satisfy. Time still passes on, and one stormy night, when the lightning flashes and the thunder roars, and the rain comes down in torrents, the poor old woman quakes with terror. She looks out at the door, sees how the rain rushes down, starts back at the vivid flash which reveals all the desolateness outside, and then turns in to ruminate. Involuntarily her thoughts fly off to those away, and she fancies all sorts of evil happening to them. Even in bed her dreams are of them. Next day she tells her dream to her old husband:—

"Aw've seen em i' their Queensland whoam,
As plain as e'er aw seed em here;
Th' place may be reet enoof for some,
Bo Will ull find no comfort theer.
Aw seed em i' their wooden hut;
They didno seem o' eare t' be free,
For Peg an' Will to bed wur put,
An' Polly sat o' th' mother's knee;

"An' th' mother keawrt o' th' stoo i' th' nook;
Hoo'r sadly autthert, too, for sure;
Will wore a weary, wasted look,
As he walkt to an' fro o'er th' floore.
At th' yead o' th' heawse, aw'r fain to see't,
Eawr pictbers hung; an' plain t' be seen,
Ther Polly's mother's hung o' th' reet,
An mine o' th' left, an' thine between.

"An' while aw closely watcht eawr lad,
He stopt before em neaw and then,
Lookt o'er em one by one so sad,
Then soikt an' walkt abeawt agen."

These rhymes do but embody the fancies of Mr. Joseph Ramsbottom. But that his fancies were not extravagant ones we have evidence to show. Papers recently received from Queensland tell a story which will touch many hearts in Lancashire. Three or four years ago a number of working men, residing in and about Bolton, formed themselves into a company, and, having raised some little money, sent out about thirty men to found a cotton-growing settlement in Queensland. It was intended that these thirty should prepare the way for others. It is said that some pods of Sea Island cotton, picked from trees in the Brisbane Botanic Garden, had been handed about amongst these men, and that their imaginations had been inflamed with the thought of what might be done. Numbers of men who were then suffering from the general complaint —want of work—went without meals which they could ill spare that they might contribute something to the fund which should convey themselves or their friends to a new land of promise. Land was taken up on the Pimpama River, and after three years' hard work, hard fare, and innumerable privations on the part of the men, the scheme has failed utterly, the manager has been obliged to sell the land for any price he could get, to meet the liabilities on the estate, and the men are all at loggerheads with him, and suing him for wages for the time they have been at work on the company's estate. When Mr. Lee, the manager, took up the land on the Pimpama, he found that the rules of the company at home were not applicable to a company in Queensland; so a new company was formed, but no articles of association were signed by the men, although they were shareholders of the home company, who had been drafted off, or who elected to come to Queensland. As they came out, Mr. Lee received them, and took them down to Pimpama, where they seem to have all worked and fared very much alike. The land orders they brought over were handed to the manager, and he disposed of them for the purpose of purchasing stores and other necessaries. An £18 land order would realise £14 10s. among the Brisbane speculators; so each man who had a land order was credited with a half paid-up share of £25 in the Queensland Company. When land orders to emigrants ceased to be transferable, the men were told that they would have to work out a share. But things grew worse and worse at Pimpama, and some of the men began to leave; so, to prevent this, and make another effort to render the undertaking a success, it was decided that each man should sign a formal agreement with the manager under the Queensland Masters and Servants Act, by which they undertook to serve him for six months at stated wages and rations; at the same time, according to the statement of the manager, it was agreed that these documents should not bear a literal interpretation, but that each workman or shareholder on the estate should take a fair share of the proceeds from the estate. The new arrangement worked no better than the old, and at length Mr. Lee (the shareholders say without the knowledge or consent of them, or his fellow-directors) sold the estate, and two of the men sued him in the Supreme Court recently on the argument for wages to which we have before alluded. The jury, with characteristic impartiality, gave a verdict for the plaintiff in one case, and for the defendant in the other.

The Temperance Question in its Sanitary Aspects.

From the Latin *sanitas* comes our "sanitary," signifying "that which pertains to the health or soundness of the body." Health is so great a blessing, that we are not surprised to learn that the Greeks, who were addicted to deifying things visible and invisible, should have worshipped it as a divinity. To all classes and to all men health is a boon exceedingly precious, though not sufficiently prized by many, as the proverb tells us, till it is lost. But to working men, beyond the enjoyment it yields to all, it has an especial value, as the physical condition on which their labour, and the pecuniary reward of that labour, depend. A mechanic or artisan cannot afford to do his work by proxy. Weakened health means to the manual toiler weakened capacity of support; and want of health, when long continued, is but another name for want of those comforts, and even necessaries, which help to make sickness more endurable. Provident habits will enable the workman to provide for a rainy day, but they will never enable him to dispense with the health and strength, whose industrial application brings to him and his family the earnings that are partly consumed and partly stored.

If, as was before shown, distilled and fermented liquors contain scarcely the smallest alimentary substance, any sanitary quality they may possess must be related to the alcohol which gives them their intoxicating power. Experiments, however, have demonstrated that in large doses alcohol acts characteristically as a poison; and every test hitherto applied has made it appear that some of the effects of poisonous doses attach to quantities very commonly consumed as daily potations of alcoholic liquor. Small doses often repeated, exert, it is found, though more slowly, some of the worst effects of large doses; and where any effect at all can be traced on the composition of the blood, as viewed under the microscope, it is injurious rather than beneficial. Alcohol is never assimilated—that is, it never becomes a part of the body; and a course of most interesting experiments entered upon by eminent French chemists, and confirmed by English experimenters, has made it clear that as soon as alcohol enters the system the excretory organs are set in motion to expel it. This fact is a strong presumption against the sanitary influence of alcoholic drinks; and the amount of extra labour thus thrown upon the excretory organs cannot be without some disadvantage to them when the amount of such labour, extending through many years, is taken into account.

Drunkenness is admittedly an anti-sanitary condition; but drunkenness is a very indefinite state, and is generally identified with marked intoxication; yet the truth is that very much of convivial drinking is responsible for consequences injurious to health that are popularly restricted to glaring inebriation. Every medical practitioner knows that multitudes who are not drunkards, in the popular sense, use strong drink so as to injure themselves and abridge their lives. The great risk to health that attends drinking as a social practice and as a sign of good fellowship, is not to be lightly regarded.

When the Temperance advocate urges that entire abstinence from all alcoholic beverages would cause a sanitary no less than a sober reformation, he is entitled to be heard with respect. So many lives are destroyed and so many constitutions broken up through drinking, that the philanthropist cannot be prejudiced against a system that would, at all events, save thousands from premature decay and death every year. What excessive drinking can bring men to—many of them workmen of no mean abilities—the infirmaries, and hospitals, and cemeteries of the country too fearfully attest. That total abstinence, if universally practised, could entail an equal loss of life, is utterly incredible. But, as compared with a moderate use of intoxicating drinks, is total abstinence a sanitary regulation?

Besides the scientific argument already noted, other facts may be adduced.

1. The experiences of prison-life are of unquestionable importance. In prisons, where men of all characters—some moderate drinkers, others very immoderate—are brought together, sudden abstinence becomes the rule binding upon all. The results are, with the rarest excep-

tions, in favour of the prisoners' health; and one governor of a prison for twenty years has stated that out of 20,000 persons confined, he never knew a single instance of suffering from this cause.

As voluntary abstinence cannot be more prejudicial than compulsory abstinence, this test cannot be accused of unfairness, and it is not open to the charge of partiality in numerical limitation.

2. It is demonstrable that in extreme temperatures of heat or cold, abstinence is preferable to any use of alcoholic drinks. In Arctic regions alcohol cannot be used with impunity; and in hot climates its worst effects are rapidly displayed. An official statistical return in relation to British soldiers in India, showed that the mortality among drunkards was twice that of moderate drinkers, and among moderate drinkers twice that of total abstainers. Failing in extreme temperatures, can it be supposed that in more temperate climates alcoholic liquors are capable of imparting energy to the frame?

3. Long before the Temperance movement commenced, it had been proved that the hardest labour could be better sustained without intoxicating liquors than with them. Even among non-abstainers, many who are engaged in the most exhausting callings—such as working before blazing furnaces, and in deep mines—never drink strong liquor till after their daily toil. It may be stated as incontrovertible, that the most laborious manual labour in Great Britain is now performed by abstainers with less fatigue than by others. The sanitary indications of this fact are too plain to be mistaken.

4. The statistics of sick and benefit clubs—whether the comparison is made between abstainers and others in the same clubs, or between clubs of abstainers and other clubs—generally, if not uniformly, sustain the Temperance position. Insurance offices admit as much by their anxiety to secure teetotalers as members, some of them grouping such insurers in a separate section. But the most important evidence yet furnished of a statistical nature is derived from the experience of the General Temperance Provident Institution. During its first ten years (1840—50) this office insured abstainers only, and the rate of mortality was considerably below the average of other offices. Subsequently, non-abstainers were insured in a separate section, and this arrangement has allowed of a close comparison, extending over fifteen years, of both classes, every care being taken, in the case of non-abstainers, to accept only those who were of strictly sober habits. Two bonuses have been declared during the terms of comparison, and we learn that the abstainers obtained bonuses ranging from 35 to 75 per cent., and from 35 to 86 per cent., while the bonuses realised by the non-abstaining section ranged from 23 to 50 per cent., and from 24 to 59 per cent. The actuary who certified to these differences was himself a non-abstainer, the late Mr. Peter Hardy.

All these considerations, separate and collective, are entitled to great weight; but they do not stand alone. It would be incorrect to represent the sanitary case of the Temperance reformer as confined to the bare issue, whether any use of intoxicating liquor is better for the body than none. The friends of Temperance associations are, as a rule, fully alive to the importance of all the sanitary appliances and aids involved in good lodging, good food, and good clothing. They acknowledge that incalculable sanitary benefits would flow from successful efforts to multiply the improved arrangements just described; but they also insist upon it, and with great force, that were their recommendation adopted, all these means of promoting sanitary reform would be powerfully reinforced. They urge that, if the working classes would cease to drink, this single act of abstention would speed the cause of sanitary improvement as nothing else can do.

New Gold Mines.—A number of Californian miners have emigrated to Choco and Barbacoas, about 500 miles south of Panama, to work the gold mines there.—*California Paper.*

New Park for Southwark.—At the last monthly meeting of the Rotherhithe Vestry, it was stated that the Metropolitan Board of Works had now obtained possession of the whole of the land required for the formation of the new Southwark park, and the work of clearing some of the market gardens had been commenced. Some tenements required would be given up to the board after Lady-day, and the work would then be rapidly proceeded with.

The Scotch Herring Fisheries.

It may be well to mention that the Scotch people paid very little attention to the herring fishing about the commencement of the present century; but it was prosecuted with vigour for several centuries by the Dutch, who employed at one time no less than 1,800 or 1,900 boats, each on an average of about 50 tons, and manned by 25 men. The employment of from 40,000 to 50,000 in this manner, and the families depending upon them, was a matter of very great importance. The Scotch people became alive to the importance of the fishery about 1820; and being stimulated by their successful efforts, have carried it on since that period with the greatest perseverance into its present developed form. A Board of Fisheries has been instituted, and is in operation, for their proper management and prosecution.

The herring fishing is of national importance, especially when we take into consideration the number of people who gain their livelihood in its prosecution. The dangers to which fishermen are exposed are very hazardous indeed. The greatest number of boats are without any decks; and when a storm arises they have, on account of their great number, great difficulty in running clear of one another. During the year ending 31st December, 1864, there were no less than 13,331 boats, decked and undecked, employed in the capture of herring, cod, and ling, in Scotland and the Isle of Man, manned by about 43,484 fishermen and boys; the tonnage of the whole being 98,522 tons.

Each boat in the herring fishery is manned by four or five, and occasionally six men. On the eastern coasts of Scotland one man is generally the owner of the boat, sometimes two; but on the western coast there are usually three or four, who run shares: but the owners employ "hired men," as they are termed, to form their respective crews. The value of a good boat, when new, is about £100, and the nets and other materials required will amount to nearly another £100; so that it will be observed that the fisherman requires a considerable capital ere he can equip himself properly, and free of debt, for the sea. Besides, his resources, being always exposed to the mercy of the elements, are very precarious. Fishermen might avail themselves of the advantages afforded by insurance companies, which have been, so far as we are aware, hitherto entirely neglected by them.

We can scarcely behold a more beautiful sight in an autumn evening than the Moray Frith studded with boats, sailing away to shot their nets for the finny tribes of the deep; and our admiration is transformed into astonishment when we are informed of the real value of property that is committed to the deep, besides the great number of precious lives that are entrusted to its bosom. A few statistics will, we presume, be exceedingly interesting. The area of the Wick fishing ground is about 150 square miles. All the nets which belong to a boat are called its "drift," and the drift is usually about a mile in length. Allowing, then, a mile, or at least two-thirds of a mile, for a drift of each one of the 1,030 boats that hails from the port of Wick, taking the lowest calculation, and the whole length will at least be about 800 or 900 miles. We can hardly imagine the havoc which such an amount of netting would perform amongst great shoals of fish in the above-mentioned area. The value of only the boats, nets, and lines, engaged in the herring, cod, and ling fisheries in Scotland, including the Isle of Man, amounts to about £875,000.

The herring fishing on the western coast extends over five or six weeks in the months of May and June; on the eastern, for seven or eight weeks, in July, August, and the first few days of September. These are the particular periods in which the fish appear in great bodies off the coasts, but they can be procured all the year round in greatly reduced numbers.

The fishermen enter into engagements with curers to deliver their "catch" at so much per cran. Sometimes they do not make such agreements, but sell their fish at the prices that may be current at the time of delivery. But the general rule at the great fishing ports, such as Wick, is to deliver them to curers at so much per cran. About 700 herrings are required on an average to fill a cran measure. Some boats may capture 200 or 300 crans during a fishing season, which consists of seven weeks; but it is at best nothing but a game of chance, and other boats may be even limited to 20 or 30. The prices vary from year to year, but on an average for the last few years it may be estimated at about 20s. per cran. It will thus be seen that the fisherman who may be to any great extent successful, is highly remunerated for his toil during the few weeks he is so employed. The fishermen are generally the owners of the boats, and the hands employed by them for their assistance in the management of the boat and in fishing get from £4 to £9 as wages, according to their merits as seamen, for a season. The town of Wick is the great metropolis of the herring; and at the commencement of each fishing, great numbers of men from the immediate counties collect, in order that they may be employed as hired men during the season. They flock from Sutherlandshire, Ross-shire, Inverness-shire, Orkney and Shetland, &c., and on the expiry of the term of their engagements, carry away their earnings to their respective homes.

The result of each fishing brings either joy or sorrow. Sometimes the fisherman has from £60 to £150 clear in his pockets; and at other times considerably in debt. But although his efforts be fruitless one year, he always expects to be successful the next. In fact, there are two fishings in the same year—one on the western coast, and the other on the eastern, at two different periods, so that the fisherman of either coast can avail himself of both. A great number embrace this opportunity, with all its uncertainties; and, like every other professional department of social economy, some are successful, others are not.

Along the eastern coasts of Sutherland, Ross-shire, Caithness, as well as on the entire western coast, the fishermen have small farms or crofts, on the cultivation of which they spend the time in which they are disengaged from fishing. On the shores of the Firth of Forth, and the southern shores of the Moray Frith, the case is entirely different. There the fishermen do nothing but fish from one end of the year to the other. No sooner does one race of fish go out of its season than they are capturing another in season. When the great shoals of herrings move away from the coast, they ply the white fishing, such as cod, ling, and haddock; hence the whole period of their existence is occupied in the prosecution of the various kinds of fishing; and many of them have more than enough to do to maintain their families. The number of fishermen is comparatively small in comparison to those who are dependent upon them. Of the 43,484 fishermen in last year's report of the commissioners of the British fisheries, there are 40,934 of these in Scotland, and 2,550 in the Isle of Man. The number of those who are thus placed in immediate dependence upon the fisheries is therefore very great. The Royal Naval Coast Volunteers in Scotland are all from the ranks of the fishermen.

The social position of the fisherman has, like that of every other class in the kingdom, risen gradually—from physical, social, and moral points of view—within the last thirty or forty years. The habits of the Lowland fishermen are cleanly and industrious, and their brethren from the Highlands are learning lessons of great benefit for the promotion of social principles during their annual sojourn among the great fishing towns. No great change can be expected to take place at once. This intercourse, which is the result of the successful prosecution of the herring, will have a great tendency to mingle the Saxon with the Celt. It incites a kindly feeling in the breast of the one to the other. Complaints were made at one time that they were too much given to intoxication; yet, we must confess that this custom is still rather prevalent; but, at the same time, we are quite convinced that its influence has greatly diminished. Not many years ago, not one of their boats could be hauled or launched, not even a bargain contracted, without being terminated by some Bacchanalian festival. Such practices have, however, changed for the better. We anticipate that there will yet be greater reforms in the fisherman's social position, so that his influence as a member of the community may be considerably enhanced, as well as his own individual comfort and prosperity greatly increased.

(*To be continued.*)

The Ster-Hydraulic Press.

It was not until the year 1796 that Bramah applied the principle of equality of pressure in fluids, discovered by Pascal, and constructed the hydraulic press that bears his name, and which has rendered such important services to arts and manufactures.

It is, however, very probable that Pascal invented several machines based upon the power of water; and Condorcet, who published his works in 1776, warmly regrets his inability to obtain a copy of the collection of machines published by Pascal, but of which only thirty copies were printed. The first idea of applying the force of water to the increase of power in presses unquestionably belongs to Pascal; and it is to be remarked that, in the description of the principle he had discovered, the hydraulic press is not given in the germ, but actually constructed in all its parts. This fact may be proved by reference to the second edition of Pascal's works, published in 1664, in which he says:—"If a vessel full of water, closed on every side, has two openings, one a hundred times larger than the other, by putting into each a piston that exactly fits it, a man, pushing the smaller piston, will match the power of a hundred men who push the one which is a hundred times larger. . . . Whatever proportions these openings may have, if the power applied to the pistons is equal to the openings, they will be in equilibrium, from which it appears that a vessel full of water is a new principle in mechanics, and a new machine to multiply power to any degree that may be desired, as by this means a man may raise any weight he proposes."

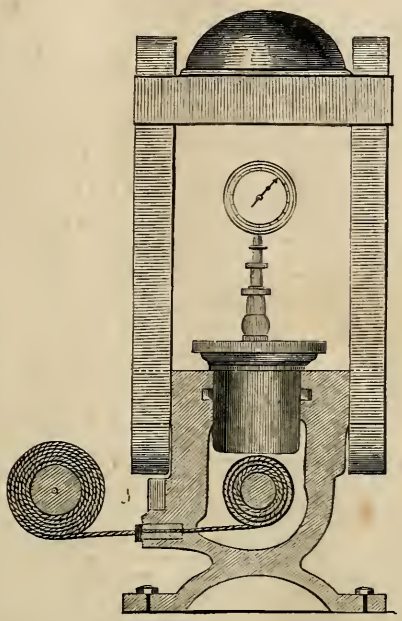
The invention of the hydraulic press, a powerful aid to mechanical industry, did not cause lever and screw presses of iron and wood to be superseded. These various kinds of presses continued very imperfect in their construction up to the year 1815, but since that date they have undergone so many improvements that it would be impossible to enumerate them. In the minor branches of manufacture they are still employed; but, notwithstanding the various modifications they have undergone, they still remain very defective, are easily put out of order, and very slow and uncertain in their results.

Messrs. Desgoffe and Olivier have endeavoured to remedy the inconveniences inherent to presses of this class, and have sought to provide small manufacturers with a simple, durable, and powerful machine. They have succeeded admirably. The principle upon which their apparatus is based is of a simplicity so elementary that we naturally inquire how it happened that it was not sooner thought of and applied.

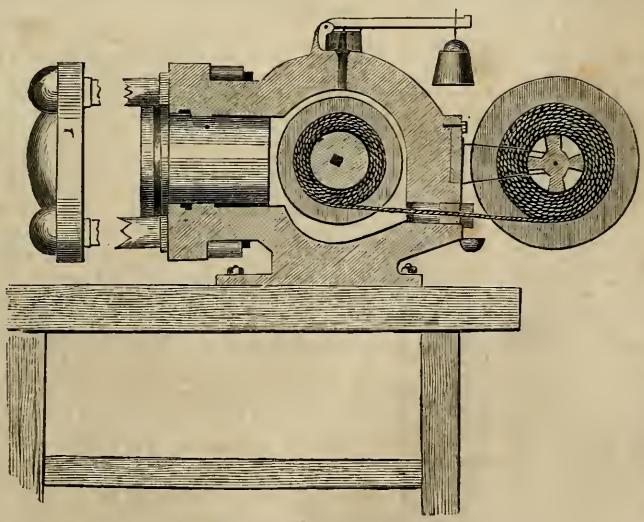
Introduce a cord into a vessel full of water; the liquid is displaced and overflows. Substitute an hermetically closed vessel for this open one, and cause this same cord to penetrate into it by a closely-fitting aperture; the liquid will be displaced as in the first instance, but, being unable to flow out, it will be compressed, and in virtue of its elastic force will be pressed against the sides of the vessel; if one of these sides is formed by the surface of a piston, the latter will be pushed by the pressure exercised by the liquid, and, being raised, will exercise upon the substance between its external part and the platten of the frame an action analogous to that of the piston of the hydraulic press.

In the hydraulic press, the pressure is exercised upon the surface of the liquid, and is communicated to every portion of it. In the new press, the compression of the liquid is effected by means of a solid body, which, introduced into the mass, diminishes the space occupied by the liquid, and compels the same quantity of matter to assume a smaller volume. Thus, the ster-hydraulic press is based upon the well-known principles, observed during all time, of the compressibility and elasticity of fluids.

This being established, we now proceed to show the ingenious arrangements the inventors have contrived for their apparatus, or solid hydraulic machine (from *stereos*, solid). First, there is an external pulley, upon which a cord is wound, which passes through a stuffing-box to be wound upon a pulley placed in the interior of a receiver, which contains the piston rod. This receiver is full of liquid; the cord by being wound upon the internal pulley displaces the liquid, and forces the piston outwards; by exercising upon the latter an action energetic in proportion to the quantity of cord wound, the capacity of the receiver diminishes, and, consequently, compels the liquid to assume a smaller volume.



VERTICAL STER-HYDRAULIC PRESS.



HORIZONTAL STER-HYDRAULIC PRESS.

By operating in a reverse direction—that is, by winding the cord upon the external pulley, and by unwinding the internal pulley—a vacuum equivalent to the volume of the length of cord unwound is produced in the receiver, and the piston then returns, driven by atmospheric pressure—provided its weight and the friction are not too great—the pressure of the liquid on the piston ceases, and is thus brought to a state of inactivity. Oil is the liquid employed to fill the receiver, and the solid body selected is catgut, which, by its unchangeability in oil, and by its malleability, admits of ready winding power, and presents a perfect resistance to the efforts of traction and compression. The joints of the piston and of the axis of the internal pulley are made of leather; that of the cord is made simply of hemp. At first sight, it may appear very difficult to avoid leaks at the latter joint; but several months' experience has proved that it was completely staunch; for the cord enters the receiver with very great velocity, and in a direction opposite to the motion of the liquid which tends to flow out; the cord thus carries with it small quantities of oil, which the internal pressure impels to escape, and, consequently, opposes all leakage of the liquid. By the contact of the oil, the stuffing-box around the cord becomes more and more condensed, and at length forms a horny tube of the exact calibre of the cord.

This new press is constructed for vertical and horizontal positions, by varying the arrangement of the pulleys and the winding of the cord; but it is not necessary to enter into all the details of construction, but only to point out the advantages of this new press.

The nature of this apparatus does not admit of its replacing powerful hydraulic presses, for that would require cumbersome lengths of cord and immense receivers. The ster-hydraulic press is proposed to supply the place of the ordinary screw and lever press, and produce a pressure equal to fifty tons, which is sufficient for most manufacturing purposes. By suppressing the causes of derangement in ordinary presses, and by creating apparatus for continuous pressure—so necessary, for instance, in the manufacture of oils, in which the gradual pressure of the screw press is considered better than the sudden fits and starts of the hydraulic press—by substituting for the parts more or less complicated of common presses a simple arrangement which admits of a durable machine being sold at a low price, and by its easy working and a certain readiness for use, Messrs. Desgoffe and Olivier have rendered important service to industry. It is not improbable that the idea embodied in the ster-hydraulic press will receive other important applications.

Off a Board.

A TAILOR'S STORY.

"You'd better pay it," says Jenny.

"I'll be hanged if I do!" I says.

"Don't be obstinate, Dick," says Jenny; "it will only make worse of it."

"*I won't pay it!*" I says, savagely; and I banged my iron down upon the old horse-shoe that I use for a stand, and that so fiercely, that Jenny, my wife, jumped again.

"But, you know, they'll put in execution, and drag off ever so many things, Dick; and you wouldn't like that, I know."

Ah! and so I did know; but I'd had all my fur rubbed up wrong way, and I wasn't going to own it. So, like a many more fools do when they're cross, I shut my eyes to reason, and I says—

"They may take every blessed stick there is in the room, and be hanged to 'em, for I don't care!"

I felt sorry as soon as I'd said it; but I wasn't going to show it, 'cause I thought it would look weak; but I took a peep out o' the corner o' my

eye at Jenny, who was watering the flowers in the winder—for we always has a few in the summer time, though we can't keep 'em free from blacks, and they gradually gets a bit worse every day from the time we buys 'em in Common Garden till they dies right off, as if they pined away, like some other little flower did, amongst the bricks and mortar. So I looks out o' the corner o' my eye at Jenny, and I sees she was troubled about it; for though she made believe to be werry busy watering the little fairy rose with the old broken-nosed tea-pot, I saw one little drop o' rain from somewheres else fall upon the flower, while them three seams—the worst I ever sewed, and I own it, I did sew them—them three seams were marked out deep in Jenny's forehead as she stood there in the winder.

Now, you know, that one little round drop bowled me over like a nine-pin, without the three seams, or the sight o' the little rose-tree. I drops the trouser-leg I was on, uncrosses my own quietly, and should have been off the board and behind her before she knew it, if I hadn't clapped my hand on my goose, which, being hot, bit me sharpish, so that I made a noise. Howsomever, I gets off the board, and gets alongside o' Jenny, and——

"I'll pay it, Jenny," I says.

"I knew you would, Dick," says she; "but you shouldn't turn so cross." And them three seams were gone in no time, and the place looked quite sunny again as I slipped back on to the board and stitched away like a good un.

"Where's my twist?" I says.

"Why, you had it there just now," says Jenny. "Why, you're sitting on it."

So I was. But then the wax was lost; and after a hunt I found I'd knocked it down; and then the iron was cold; and one way and the other, all along of that blessed little score, I'd lost two hours that morning. Then comes two rings at the second bell, which means first floor back—that's us, one ring meaning first floor front—and Jenny goes down and finds it's the trotter, as we calls the errand-boy from the shop; and there's all the fat in the fire—regular flare-up because the trousers ain't done.

"Tell him I'll bring 'em the moment they're done," I says. And then I begins to feel that mad again I didn't know what to do, till I sees the seams coming in Jenny's forehead as she sits down to help me, when I swallers it all down, rattles away at the job, nips on the buttons, presses off with a good iron as Jenny had ready; and there they were, as well-made and good-sitting a pair o' trousers as could be turned out by any trouser-hand in all town.

Now, I don't go by looks when I say they're well done; and I don't go by what our foreman says when I take my work to the shop. I don't go by that, for our cutter grumbles at everything as goes in; but I'll tell you what I goes by, and that's this—there's always another pair cut out ready for me, so that I'm mostly in full work, and the missus and me can earn in a week—what aint nobody else's business but our own.

Dinner was ready when I got back from the shop: the bit o' steak looking as brown as brown; plenty o' gravy—I wouldn't give a shred for my dinner without gravy; Jenny was peeling the potatoes—beauties they were, too, laughing all over in their brown jackets till they cracked their sides; there was a pint o' heady porter winking and twinkling in the jug; and all looking as clean, and neat, and nice as could be. But, as I told you, I didn't feel smooth, and I bangs the cloth down on the board so that the scissors jumped again; rattled my hat up again the canary-bird's cage, and nearly frightened the poor little yaller thing into fits; and went on a bit like those chaps do on the stage when they're in a passion.

Jenny wasn't going to be done in that way though, bless you! for she gets hold of me with one hand, holding a potato on the end of her fork in the other, just as if she was taking me into custody, and then shoves me into a chair by the table.

"Can't eat," I says; "I'm off my feed."

"Nonsense, dear," she says; and a pretty dear I looked, I know.

"No appetite," I says.

"Nonsense," she says; "that's as juicy and tender a bit o' steak as can be got for love or money."

"Yes," I says; "and that blessed County Court bailiff 'll be here directly for that money."

"No, he won't," she says. "He's been, and I've paid him."

"You have?" I says, splashing the gravy all over the clean cloth.

"Yes," she says. "I took enough out o' the post-office on purpose; and now that's done with, and I won't have another word said about it."

And then she poured me out a glass o' beer, frothing it up well, and as soon as the canary heard it trickling into the glass, he burst out a-singing, and what with the steak being so tender and juicy, and spiced up with a pickled walnut in the gravy, and the potatoes melting away like balls of flour in one's mouth, and the beer being cool, and nice, and sharp; and last and best of all, my Jenny sitting there so quiet and comfortable-looking, I made one o' the best dinners I ever did in my life, and went to work after with a load off my mind, and felt better than I had done for days.

And now, along o' that score, speaking as fair as a man can speak, it was a burning shame as I had it to pay. You know it aint pleasant to be made to pay for things as you never had; and I know I never had one half o' the beer o' Saturday nights as that landlord sent me in a bill for.

"No," I says; "I'll pay you what's right and just, and I won't pay another penny." And so he puts it in the County Court.

Jenny was werry cross about it, for she said I'd no business to have run up a score, and that I might have been sure of what would foller; and after what I'd promised, she said it was too bad.

I didn't say so, but o' course she was right; and in spite o' good advice to pay the thing and adone with it, I must be obstinate, and talk about principle, and so on, and lose a day's work to go and dispute the claim. Nice fool I made of myself! The plaintiff gets up in the box, and is sworn, shows his books; and then comes my turn, and of course I swears I didn't owe so much, for I knowed I owed something.

"How much of it do you dispute?" says the judge.

"Well, I don't exactly know," I says; "but I don't owe all that, your honour."

"Have you kept any account?" says the judge.

"No," I says, "I haven't, your honour."

"You ought to be ashamed of yourself," says the judge. "You get into this man's debt for beer, when the money that will have to pay for it is wanted for your own home. And as for the plaintiff, he deserves to lose it all, for landlords have no business to let men run up these Saturday night scores. Order for immediate payment!"

O' course, I looked like a fool, and I know everybody in court thought so too; and there was judgment entered against me, and I should have to pay the bill, and the cost of the summons, and the hearing fees, and then on to that was the loss of a day's work; so that I went home calculating that it would just about swallow up a pound of the five-and-thirty shillings we had got in the post-office savings bank; and after growling away all that evening, and drinking more beer than was good for me, I was headachy and cross next morning, and swore I'd be hanged if I'd pay the money.

Now, two or three times over you've heard me talk about seams, and about three marks as I calls seams which I can see sometimes on Jenny's forehead, that used to be as smooth and white—ah, and whiter, too!—than any lady's. Now, fairly speaking, I only made two o' these seams; and t'other one came o' something else.

You see I don't think I went on quite as I should at one time. I was never a regular drinker, but I used to be too foud o' company, and spent a good deal of time, and money, too, at the different public-houses about, so that somehow or other, by littles and littles, a good half of what ought to have gone towards making home comfortable was fooled away, and nobody a bit the better.

Then, Lord bless you! I must take to keeping a dawg, when I wasn't keeping my wife and child properly; and instead o' taking Jenny and the little one out for a walk now and then, I must take the dawg out, while those faces at home was getting whiter and whiter every day, for want of a little fresh air.

Dawgs are right enough in their way, and I aint agoin' to find fault about tame dumb animals; but what I say is as a man with a wife and child living in one middle-size room, and a little one, a man who brings up a dawg to live there too, don't act with common decency to his wife and child; and, not to put too fine a point upon it, is little better than a fool.

Well, that's saying as I was little better than a fool about that time. Just so; and between you and me and the post, as they say, I begin to think now that I was a werry little bit indeed better than a fool, and perhaps there was such a werry small shade o' difference that it would ha' taken a clever man to tell which was which.

Of course, I grew sour and morose, and found fault with everything; and one day I went off out, for I'd no work, and I took my dawg with me, as a matter of course, and went wandering about the streets, anywhere, nowhere, like, with my hands in my pockets, looking a nice, respectable sort of a chap—unshaved, dirty-booted, shabby, scampish, and finished off with a short black pipe stuck in my mouth. I've got that picter of my old self framed and glazed, and can take a look at it any time when I like, for it's close shut up in my brains; and I takes it out now and then, shakes my head, and puts it away again: and you know it's when something pulls hard wrong way as I does this, and it freshens me up, so that I go to work again like a savage.

But along o' my outing that day. It was quite dark when I was on my way home, and I was crossing one o' the big streets, when I hears a shout, and jumps forward just in time to save myself from being knocked down by a gentleman's carriage; and just at the same time I hears a yelp, and then the carriage drove on, and I finds as my dawg had been run over, and was as dead as a door nail.

How I did go on as I went back! so that you may guess I wasn't werry nice society for a sad woman when I got home.

"What's the matter with her?" I says, roughly—for Jenny had our little girl, Meggy, in her arms by the side o' the fire.

"I'm afraid she's werry, werry ill," says Jenny.

"Got a cold," I says; "put her to bed." But as I said so I looked at her little flushed face, and something seemed to strike me all at once that it was worse than a cold.

"I can't put her to bed," says Jenny, "for I've been obliged to nurse her ever since you went out, and I haven't got her bed ready."

Then I began to tremble, and went and kneeled down by the poor little thing as she lay with her eyes half open, breathing short and heavy; while there was quite a wheezing, rattling noise in her poor chest.

"Let me take her," I says, softly; but the little thing heard it, and she clung closer to her mother, and motioned me away; and then it was I looked up, and saw that two deep seams ran right across Jenny's forehead, and I knew how they came there, while now even my own little one turned from me, and I felt something come over me as I had not felt for a year or two.

"Come to father, Meggy," I said; and the child must have known there was a difference in my voice, for she turned round, stared at me a minute, and then put out her arms, and I took her; while I saw the tears come pouring out of Jenny's eyes, for, though she could stand harsh treatment, this change seemed so to overcome her that she stood looking piteously at me for a minute, and began sobbing bitterly.

I sat up with Meggy that night, and made Jenny go to bed; but it was a long time before she went to sleep, and then I could hear her moaning every now and then so pitifully, while more than once I found her eyes all wet with tears, and I knew who made them come. There, too, in the cot-bed lay Meggy with her little face burning as she tossed about, and grew so wild that soon she didn't know me when I spoke.

Jenny had given her some spirits o'nitre, and thought it would drive off the fever; but as the night wore on she, poor child, seemed to grow worse.

If ever a man gnawed his own heart, I did that night. I could see it all now, and knew what a vagabond I had been to them both. A good workman, I might have had comforts around them, while now as I sat there I knew that I must fetch the parish doctor, for I had not a shilling in the world. It would have been a brave man who could have talked to me as I talked to myself that night, for I was kneeling down by

that little innocent's bed, bitterly repenting of all the past, and praying for a better future.

I should think it was about four o'clock in the morning as I kneeled there watching that poor little feverish face, that all at once I started, for a white figure stole into the little room and kneeled down beside me; and I don't know whether hearts do talk to hearts or no, but Jenny seemed to understand all I meant and wanted her to know, without my having to humble myself and tell her, as I kneeled there with my face buried in her hands. And at last, when I thought that as I had been coward enough to treat her as I had done, I would be a man now and tell her of my sorrow, though it humbled me, for I felt as I ought to be humbled, and was beginning to speak, but—God bless her!—she put her lips to mine and would not hear a word, for she said she had nothing to forgive.

Next morning I had the doctor there as soon as I could get him, and he told me to go on to his place for medicine, and I did so; and when I wasn't watching by the poor child, I was running out, and trying from place to place for a job of work. But there wasn't such a thing to be got now, for most of the masters knew me, and how much dependence they could place in my promise; and so that night, quite worn-out and hungry, I sat down to watch by poor Meggy's bed, and dropped off fast asleep.

Jenny soon woke me up and took my place, and she watched that night; but I could not sleep, for it seemed as though something was gnawing at my heart, and telling me of what a scoundrel I had been.

And then a week slipped by, and all these sad troubles that were upon us night and day seem now to be mixed up together in a confused dream; but I can see plainly standing out, and always shall, a bare and miserable room, lit by a tallow candle, where a figure which looks like a pale shadow of my wife Jenny sits with a little death-stricken figure in her lap. There's a neighbour there, too, and a doctor putting on his hat and leaving the room, shaking his head, while it seems to be me as is asking him whether nothing else can be done.

And I can see, too, a man selling nearly the last scraps of his furniture to a broker, so that he may pay the sad duties to the dead.

And I can see a sad couple standing by the side of a grave in the cemetery, looking down for the last time at a little plain white coffin with eyes that can see beneath the lid, and fondly gaze upon the waxen, sleeping features of their little child, as she lies calmly there in her white robe, almost smiling in her sleep deep and breathless, for the bundle of violets upon her breast lay motionless and still.

And I can see that couple back in their cheerless bare home, looking at the little empty bed, hand in hand; and then their eyes meet, so that something glances from those eyes; and on the one side, from beneath three deep seams, it's love and tender forgiveness, and on the other energy and determination.

* * * * * *

There was a man once, a common journeyman tailor—a poor working man, who had a heart—a fond and loving heart; for God ne'er made one otherwise; we alter them—and this man's heart, somehow, got out of place; but he fought hard and long to get it back—fought against want, poverty, and a bad name, a hard, up-hill fight, often ready to give up, but brought back to his duty by the sight of three deep marks upon his wife's forehead—deep in sorrow, almost gone in joy. It was a long up-hill fight, and he's a long way from the top yet, for there's been many a slip. Flowers could be seen in that man's window, and, among others, a little damask rose—one of those tiny-blossomed plants—and that flower faded and died every winter, as died once another flower in that same room. That man's wife tended those flowers, and some of the rose-leaves lay in a scrap of paper, which held, as well, a long brown curl of fine silky hair. There was sadness there when the cold time came, and the rose-tree faded; but they knew that the spring would come again, and bring another, and with humble hearts they hoped that they might some day see the glorious spring wherein that other flower blossoms in heavenly beauty; for no earthly spring brought another flower like the one they laid in the cemetery. He was a sad man that, and, perhaps, a wiser; and that man was me.

"Jenny," I says, the other day, "I was obliged to take out the picter and have a look at that scamp; but I shut him up again, and felt ever so much better after."

And Jenny held up her hand, as she al...ys does when I talks about the past.

*Loss of Life in Towns.**

It is wise occasionally to look back upon the records of a by-gone age, and by a comparison of our present condition with that of our forefathers to measure the extent wherein we differ from them, either for good or ill.

In any consideration of the relative loss of life in the great aggregations of humanity which we call cities, it will be allowed that London has the right of precedence. Not only is she entitled to this as the metropolitan city, but because of the proud position she holds as the chief city of the world—whether we regard the number of her people, or the vast wealth and power of which she is the representative.

There is no lack of materials for a complete knowledge of the London of to-day, when the results of elaborate official inquiries into every particular which concerns the well-being of her community are everywhere diffused, through a medium which was unknown in earlier years. To arrive at any useful conclusion relative to the London of a remote period, so as to gauge the measure of our subsequent progress, we must make the best use of such imperfect data as are derivable from the quaint memoranda and speculations of men who may be justly called the pioneers of statistical science.

Just two hundred years ago, Captain John Graunt, a Fellow of that Royal Society which has since inscribed on its long roll the names of so many illustrious men of science, and a man curious about many problems of the mystery of human life, estimated the population of London to be about 460,000, or a fifteenth part of the people of all England and Wales; and he therefore reckoned the aggregate population of the country to be at that time about 6,500,000 of people, increasing at so slow a rate as only to double their number in 280 years, whilst the inhabitants of London would increase to twice their then number in 70 years. But Sir William Petty, writing about 20 years later—that is, in 1683—estimated the doubling period at 40 years in London, and 360 years in all England, at which rate by the year 1840 the population of the whole country would amount to 10,917,389, out of which number London would count for 10,718,880, leaving only some 200,000 people "to perform the tillage, pasturage, and other rural works necessary to be done without the said city. Wherefore," he adds, "*it is certain and necessary that the growth of the city must stop before the said year* 1840, and will be at its utmost height in the next preceding period, anno 1800, when the number of the city will be eight times its present number—viz., 5,359,000, and when (besides the said number) there will be 4,466,000 to perform the said necessary rural works."

A glance at the recently-published report of the Registrar-General on the health of London during the year 1865 reveals a striking illustration of the wonderful change which has transmuted the 460,000 men of London in 1661 into the 3,000,000 who swarm in this vast hive at the present day. The limit of time which Sir William Petty assigned to its growth has passed by twenty years and more, yet there is no sign of a period of stagnation having been reached, seeing that some 45,000 fresh recruits are added yearly to its already teeming multitudes.

It will be evident from the following figures that Graunt's estimate of the doubling period was much nearer the mark than that of Petty:—

Graunt's Estimate of the Population in				1661, 460,000
Petty's	"	"	"	1683, 670,000
Maitland's	"	"	"	1738, 725,900

But from various considerations it is clear that such estimates, founded as they were merely upon observations of the christenings and burials, were only the merest guess-work, and it is therefore little to be wondered at that there was so large a margin of error. The reproductive force of our race, which seemed to be almost declining in the eighteenth century, has been amply restored in the nineteenth, and the English people have doubled their numbers in the last fifty years; whilst, by a strange coincidence, the doubling period for London is found now to agree almost exactly with the time specified by Petty, namely, forty years. So that we may regard our future prospects with equanimity, seeing that the rapid increase in our chief city is in so large a degree balanced by corresponding additions in other parts of the country.

Graunt had undoubted evidence that the burials exceeded the christenings, and he concluded, therefore, that if the population increased at all it could only be by the "transplantation" of considerable numbers from the country. The increase from this source he estimated at about 6,000 per annum. Taking the last few years, we find that, according to the ascertained rate of increase, about 45,000 persons are now added yearly to the population of London, whilst the annual excess of births over deaths averages only 30,000; and as a necessary consequence, therefore, the remaining 15,000 must be supplied from other sources, a large proportion of them, no doubt, coming from the country, but many also from foreign lands, or less prosperous parts of Her Majesty's dominions.

Very many of Graunt's statements are useless for comparative purposes, in some cases on account of the impossibility of reducing present facts to the basis which he adopted, and in others the obscurity of his language renders it difficult to decide his exact meaning. But the following propositions there can be no doubt about, and so we will use them, as showing wherein many favourable changes have taken place since the seventeenth century. In corroboration of his belief in the relative unhealthiness of London, Graunt asserts:—

1. That, in the country, but 1 of 50 dies yearly, but in London 1 in 30, over and above the plague.
2. That in London there have been 100 burials for 92 christenings; but in the country there have been, contrariwise, 121 christenings for 100 burials.
3. That about one-third of all that are born die under five years old.
4. That the autumn, or fall, is the most unhealthful season.

The records of the Registrar-General show that while the chance of life is as good now, in the country districts, as it was 200 years since, it has improved very considerably in our towns, the proportions being 1 death to 50 living in the former, and 1 death to 41 living in the latter.

Such a state of things as that the deaths exceed the births in number is, happily, only very rarely to be met with now, and that only in the most unhealthy localities. Last year, the births registered in London were, in proportion to the deaths, as 145 to 100, and the ratio was higher still (153 to 100) in the remainder of the country. The balance is again on the right side. Would that we could speak as satisfactorily concerning the third proposition; for the sad truth is, that taking the general experience of English life, as ascertained by recent observations, it is found that of every 100 children born 26 die before they attain five years of age—a very small improvement on Captain Graunt's reckoning. It is a lamentable fact that in those districts wherein are situated our largest towns, *nearly half of the whole mortality* is caused by the deaths of children; and Dr. Farr has very justly declared, that "the children of the idolatrous tribe who passed them through the fire to Moloch, scarcely incurred more danger than is incurred by the children born in several districts of our large cities." But to this part of our subject we shall advert hereafter.

After the experience of the last few months, it is not so difficult to understand how the seasons may vary within a wide range; and some such change in our climate would, perhaps, satisfactorily account for the difference between Captain Graunt's assertion that "the autumn is the most unhealthful season," and the Registrar-General's statistics, which show that, now-a-days, the first three months of the year are *invariably* those in which the greatest mortality prevails.

* Continued from page 151.

A Telegraph Line Six Thousand Miles Long.—The telegraph has lately been extended far up Fraser River *en route* for Russia, and is now in working order from New York *viâ* San Francisco to a point 400 miles above New Westminster, on Fraser River, making in round numbers about 6,000 miles.—*Panama Star.*

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are hereby offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best ESSAY or PAPER, and One Prize of Three Pounds for the Second Best Essay or Paper will be appropriated to each of the following subjects, under the conditions specified below.

LIST OF SUBJECTS.

I. THE FRANCHISE.

The advantages of its extension, and the mode of extension most likely to promote generally the interests of the working classes.

II. TRADES' UNIONS.

Special regard to be had to the advantages and disadvantages of Trades' Unions. How the former may be increased, and the latter diminished. The suggestions must be of a thoroughly *practical* nature, and, where possible, illustrated by corroborative facts.

III. THE BEST MEANS OF SECURING A PERFECT ORGANISATION AND UNITY OF ACTION OF ALL THE WORKING CLASSES AS A BODY.

Special attention to be paid to the carrying into operation of such practical proposals as a Working Men's Parliament—Central Hall—Council of Advice, or Arbitration—District Councils.

IV. THE ADVANTAGES TO THE WORKING MAN OF SUNDAY AS A DAY OF REST.

Special attention to be paid to such questions as Sunday Amusements, Opening of Museums, &c., in regard to the effect which the carrying into practice of such proposals would be likely to have upon the working classes.

V. STRIKES.

Are they justifiable under any circumstances? If not, How may they be avoided?—Courts of Arbitration—Instances where disputes between employers and employed have been settled without having recourse to strikes.

VI. EDUCATION.

Of Children—of Adults—of persons in their peculiar trades—Obstacles to education at present—Proposed remedies.

VII. CO-OPERATION.

To be discussed in regard to its *practical* application for Supply of Food—Or a means of union between working men for carrying on business—Co-operation as between employer and employed—Manufacturing Co-operation—Causes of Co-operative failures.

VIII. EXHIBITIONS.

Their advantages—How to start them—What class of articles should be exhibited—Prizes—At what intervals they should be held—Should artisans be allowed to exhibit specimens of their own particular trades?

IX. WORKING CLASS DWELLINGS.

New Government Rule on this subject—Building Societies, how to form them—The Co-operative principle, how it might be more extensively adopted—The difficulties of procuring sites—The class of buildings necessary—Cost of construction.

X. DOMESTIC ECONOMY.

Practical Hints upon Household Management—Food—Domestic Education.

CONDITIONS.

I. Each essay must be the original production of a *bonâ fide* working man, or the wife or daughter of a working man.

II. The same persons may send in essays on two or more of the subjects specified. The subject of each Essay should be written on the outside cover.

III. Each article must be written on one side of the paper only, and on the top of the first page must be written a motto corresponding with that on an accompanying sealed envelope, which envelope is to contain the writer's real name, occupation, and address. These envelopes will not be opened until the adjudication has taken place.

IV. Each essay must, as far as possible, be of a thoroughly practical nature, and should not exceed in length three pages of the Working Man. Each page contains about 2,320 words.

V. The essays must be sent in before the first day of June next, addressed to "The Editor of the Working Man, care of Messrs. Cassell, Petter, and Galpin, Ludgate Hill, London, E.C."

VI. The papers to which the prizes shall be awarded will be published in the Working Man, and are to be the property of Messrs. Cassell, Petter, and Galpin, who will reserve to themselves the right of re-publishing them in any manner best calculated to give them the largest amount of publicity and efficiency.

VII. The Donors of the Prizes, of course, reserve the right of withholding the prizes in any department in which, according to the opinion of the Adjudicators, none of the essays submitted shall have evinced sufficient intrinsic merit.

The names of the Adjudicators will be announced in a subsequent number of the Working Man.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MARCH 17, 1866.

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Possible Uses of Consuls.

The English people are becoming more cosmopolitan every day. The old national insularity is breaking up. Time was when the foreigner conceived of us as incurably attached to everything English, and contemptuous to everything foreign—to foreign languages, foreign manners, and foreign principles. Bell and Fulton changed much of this when they invented steam ships. The nation went abroad: and when George Stephenson made railways possible, the people went about. Even home travel enlarges the mind, and produces liberality and geniality of feeling; and visiting other countries has a yet higher educational effect. There is found to be some wisdom abroad as well as at home. Foreign nations have experience as well as ourselves. Difficulties we have overcome one way, they have overcome in another, and, it often turns out, in a better way. Books of travel first made us aware of this; and afterwards, the increase of travellers personally verified the reports. Necessity, more than curiosity, has converted our working men into emigrants. Instigated by political economists, the Governments of former years began to promote emigration. Under these circumstances, a knowledge of other nations became highly needful. Working men naturally desired to know where they were going to, and what manners and customs prevailed in the countries to which they were advised to go. Even now, we know next to nothing of Russia. A *Times'* correspondent, at the close of the Crimean war, did penetrate into that vast region; but his revelations were suddenly brought to a close. Yet great numbers of our best mechanics are engaged in Russia, holding important situations, and earning high wages; and more would go if more was known. It would be useful to know something more of Russia. But we have small right, as yet, to complain of paucity of foreign knowledge: the general public do not know all that is taking place in England. In Allendale, and the lead mines of Allenheads, a more perfect system of communism—certainly a more perfect application of its principles—has existed for years underground than has ever existed on the surface of the earth in England. Very few persons out of Allendale are aware of this. No one in the House of Commons, where communism is so often a subject of adverse criticism, supposes that the honourable member for South Northumberland, Mr. Wentworth Blackett Beaumont, could give an instructive account of its partial operation in his mines.

Not knowing much of what takes place at home, and not wanting to know what takes place abroad, has, we suppose, been the cause of the small use which the nation makes of its means of collecting information as to the condition and devices of the industrious classes in foreign countries. In every port and station in the world we have consuls and consulate establishments. Could they not be made to throw light upon the condition and prospects of industry around them? Some time ago the Chambers of Commerce, through Mr. W. E. Forster, the honourable member for Bradford, called upon the Foreign Office to make that omnipresent agency instrumental in collecting facts in departments of trade and commerce. The industrious class, as well as the commercial class, might obtain useful information through the same channel.

Professor Fawcett, M.P., relates, in his "Economic Position of the British Labourer," that Mr. Browne, who was a few years since the English Consul at Copenhagen, made some most interesting observations with reference to the peasant proprietors of Denmark. Mr. Browne "bears the most decided testimony to their thrift, and also to the superior comfort in which they live." We learn from Mr. Consul Browne's pages that "the first thing a Dane does with his savings is to purchase a clock, then a horse and cow, which he hires out, and which pay a good interest. Then his ambition is to become a petty proprietor; and this class of persons is better off than any in Denmark. Indeed," says he, "I know of no people, in any country, who have more easily within their reach all that is really necessary for life than this class, which is very large in comparison with that of labourers."

These are instructive and suggestive facts; but we quote them more on account of their source than their value, obvious as that is. How few of our consuls have used their leisure to so great an advantage, and communicated information so useful to their countrymen at home! How many consuls lie in monotonous indolence in foreign lands, who might agreeably diversify their days by observing, inquiring, and collecting information concerning the peasant and artisan classes! Were the matter suggested, all of them could be useful in this way, and many of them would be glad to be so. Can no member of Parliament suggest this to the Foreign Office, or bring the question under the notice of Parliament, who would authorise it? Did there exist any proper organisation among the industrious classes, their Trade Societies would be as influential to procure this being done as the Chambers of Commerce have been in a similar case. It would be easy to prepare a series of questions, which the Foreign Office could send out to all consuls, and, in due time, publish the answers received. Were this done, not only would new emigrant fields be open, places discovered where British mechanics are wanted, but a flood of light would be thrown over the condition, the laws, the prospects, the earnings, and treatment of labour in all parts of the world.

Extension of Iron Works in the Cleveland Dales.—The quiet valleys and dales lying between the vale of Cleveland and Whitby are gradually being covered with iron furnaces and other works, and in a comparatively few years the development of their almost inexhaustible mineral resources will change the whole aspect of the country. At Rosedale, Kildale, Commondale, Glazedale, and Grosmont, large works have been erected, or are in course of erection, and new populations have grafted themselves on to the old villages. At Commondale there is an entirely new village, and the works are being rapidly extended. At South Kildale and Lindsdale, two more furnaces will be at once put up, making a total of five furnaces erected or to be erected as soon as the plans can be completed.

Opening of the Industrial Exhibition in the City.

The City of London Working Men's Industrial Exhibition was formally opened on Tuesday, the 6th inst., by the Lord Mayor. The noble Guildhall, with its newly-constructed timber roof, painted windows, and restored sculpture, was made gay for the occasion with flags of varied hue; and Gog and Magog—the representatives of the brute force of old times, when every able-bodied citizen was half a soldier—were discreetly hidden by a temporary orchestra erected at the western end of the hall. In Gog and Magog days—that is, the days when might made right, and mechanics and labourers were little else than serfs or villeins, unlettered, and almost as unintelligent as the stubborn materials they worked with—Industrial Exhibitions were never heard of. The art workman was a creation of later times, when towns were enfranchised by royal charters, and craftsmen were free to work out the ideas which the poetic idealism of their faith inspired. Some of their industrial exhibitions yet exist—in the painted windows of cathedrals, for instance, such as those of York and Gloucester, the life-long labour almost of one enthusiast, who received for his work a money remuneration which, even in those days of small wages, must have been wretched indeed.

But real Industrial Exhibitions are things of to-day. The fairy palace in Hyde Park was their real parent; and the children are not unworthy of their lineage. Working men and women have set to work to produce some little article of use or beauty—some notable invention or artistic creation; and in the Industrial Exhibitions now so general, have found the means of showing to the world what ingenuity, industry, and correct natural taste can achieve. It has been found almost impossible to keep out the manufacturing advertising element, which has really no claim to admission, but which, it must be allowed, adds greatly to the value of the exhibition merely as an exhibition; and many rare and beautiful objects are generally borrowed from the private collections of wealthy connoisseurs. But still there is such an ample nucleus of the real productions of amateurs, or the working classes, that the special characteristic of the exhibition is not materially invalidated.

A few minutes after two o'clock there was a loud *fanfaronade* of trumpets, and we all stood up to welcome the members of the Corporation. The Lord Mayor was accompanied by his daughter, and leaned on the arm of the venerable Dean of St. Paul's—the learned, poetic Milman, bowed with age, but with a lustre in his eye that showed how the intellect survives the active powers of the body.

When the Lord Mayor, aldermen, common councilmen, and the attendants had reached the daïs, where they were as closely packed as they possibly could be, a "Sanctus" and the simply sublime "Old Hundredth" were sung by the choir under the direction of Mr. Benedict, who subsequently came to the daïs to be presented to the Lord Mayor; and then, a prayer having been offered, Haydn's chorus, "The heavens are telling," was sung.

The Chairman and Secretary of the Committee of Management then read certain addresses to the Lord Mayor, but what they said was quite unheard beyond the precincts of the daïs. But we knew they would furnish the reporters with copies, and were quite satisfied to wait for the evening papers. The Lord Mayor made a capital speech in reply, and, like a sensible man, determined that all present should hear him, speaking in a loud, clear voice, with admirably distinct and emphatic elocution. In the course of his speech, he said—

Working men's interests are bound up with those of their employers, and the happiness and prosperity of individuals and communities rest entirely among themselves; by the one party conceding to the other their rights as artisans and workmen, and, on the other hand, by the workmen and artisans giving to their employers their ability, their energy, and their enterprise. For, permit me to say, enterprise and labour go hand in hand. One without the other would be worthless; but the two combined, under our happy constitution and our free and noble institutions, produce great results. Give us a fair field—we ask for no favour, invite no rivalry, but an honourable and independent competition—and then we say, Come east, come west, exchange your commodities for ours. If they are better and cheaper, we are prepared to receive them. If we succeed in establishing this incontrovertible fact, that we have been the producers and the manufacturers for the civilised world, give us the justice which we ask of you, and we are prepared to offer you, whether it be in the manufactures, in the arts, or in the sciences, the right hand of fellowship, to declare that all mankind is one brotherhood, and that what we seek is universal happiness. I will not detain you, but in the name of the committee declare this exhibition to be open, and may God speed it!

Handel's "Hallelujah Chorus" was then sung. Of course, we all stood up during the sublime chant, and at first were rather surprised to see the Lord Mayor and twenty or thirty other gentlemen put on their hats, but remembered that Jews—and Lord Mayor Phillips is a descendant of the sacred race—worship with their heads covered.

The Lord Mayor was then escorted round the exhibition, and at his return a vote of thanks to him was proposed and carried with three cheers.

CONSOLE TABLE.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

ORNAMENTAL WOOD-CARVING.

We trust that the instructions in wood-carving recently published by us will have the effect of inducing many of our intelligent artisans, who possess a taste for art, to attempt to become proficients in a branch of art industry, the practice of which is both pleasant and profitable.

In our industrial exhibitions we have found many beautiful specimens of the wood-carver's skill; and those who visit the London Guildhall Exhibition will do well to study the excellently-executed group of fruit exhibited by John Lucas, a wood-carver's apprentice. The wood-carvings of Edward Bedford also deserve notice. It would be much more pleasing to find working-class skill and taste exerted in the production of such articles than in such things as tables, caskets, and so forth, made of some hundreds of minute pieces of wood; or of models "cut with a single knife," &c. The true working man should be above such a misexpenditure of time and ingenuity. Once proficient in the art of wood-carving, the artisan would find himself enabled to attempt something more than simple ornaments. He might exert his skill and taste in the production of brackets, chairs, and other articles capable of carved ornamentation. Our illustrations show what has already been achieved in this direction, and afford hints as to what remains to be accomplished.

BRACKET.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

In speaking of the *Camden Town* Club last week, one other important fact relating to it should have been mentioned—viz., that the members last year formed a Limited Liability Company, and, with the aid of friends, purchased the whole of the premises. This spirited proceeding places them in a very advantageous position as regards rent, &c., and will probably prove eventually a source of profit, even to the shareholders.

The second annual report of one of the clubs mentioned before—viz., *Preston*, has just come to hand, by which I see that the large sum of £720 had been received during the year for refreshments, while the cost of provisions, &c., was only £561. No intoxicating drinks are sold, and it is gratifying to observe how large a profit may be made in some localities by good management, without taking any steps towards bringing the club to a level with the beer-shop. The average weekly number of members was 132; the previous year, 314; but the falling off during the latter part of last year may fairly be attributed to the attractions of their very successful exhibition. There had been sold during the year 3,410 tickets at 2d., and 3,784 at 1d., figures which represent a great amount of good conferred on workmen and their homes. No mention, however, is made in their report of classes; and for want of a hall they are unable to have entertainments, readings, or lectures. This, no doubt, is a great drawback. The hall, however, they hope shortly to procure by alterations of their premises or building, and the money they have gained by this exhibition ought to put them in possession of one capable of seating 600 people. With regard to classes, I would ask the managers of the club to consider the suggestions made in a former paper respecting the importance of promoting educational improvements in working men's clubs, and some of the ways in which gentlemen's help may be so valuable for that purpose.

In the *Sunderland* Club I find from their returns (though not personally acquainted with them) that there has been an excellent discussion class; French and drawing ditto, moderately well attended; elocution ditto, poor attendance; harmonic meeting every Saturday night, crowded. All this has, of course, been both cause and effect of their prosperity. A good discussion class is one of the best signs of a healthy state of things, and a great aid to it. Few things more effectually promote mental improvement and intellectual life. Theological topics should, however, be invariably excluded, as their discussion is almost certain to break up the club, besides being objectionable on other grounds. The number of members in this club last January was 750, and the average throughout the year was between 500 and 600. This is a very high average. Independently of other advantages, there must be capital management here, and a good spirit of fellowship among the members. The elocution class, however, ought to be better attended, or the harmonic meetings will, perhaps, suffer from want of new recitations and readings. A limited liability company has been formed by the committee for the purchase of a more commodious club-house, with more space for out-door games. The purchase was completed in January, and the club was then shortly to remove.

The club at *South Shields* is specially deserving of notice, from having been founded as a "Working Men's *Institute*" so far back as 1850, and having worked on quietly and usefully ever since. The members decided on adding the features and name of a club, after a visit I paid them in 1864, and their prosperity and usefulness has largely increased. They numbered, in January last, 653 members, and during the last year they have been self-supporting, for the first time in the course of their existence. They have a library of 1,298 volumes. Classes for arithmetic and writing, shorthand, French, and German. Six entertainments and six lectures during the six months ending December, 1865. But, since there is no restriction as to the age of admission, there is a little reason to fear that the men may be in danger of being swamped by the youths. Probably, however, as there is very good management, that evil may be guarded against by having separate rooms for the juveniles and adults. I shall have something to say on this head in speaking of unsuccessful clubs. It is utterly impossible to have a Working Men's Club, if youths are admitted to it, without the provision of separate rooms.

The *Newcastle* Working Men's Club is distinguished by zealous and efficient management, excellent entertainments, good discussion and drawing class, and a first-rate singing class, the latter consisting of between sixty and seventy young people of both sexes, and in which the presence of females has been thoroughly beneficial. Their able and genial-hearted teacher received a present of a watch from them last Christmas, for his kind and disinterested labours. This club has excellent premises, in a very good locality, yet it is not supported as well as it deserves to be: only numbers about 350 members, paya its way in winter, but is not self-supporting, owing to the falling off in summer time. The age at which members are admitted, however (seventeen), is far too young, and must have something to do with the defective support of *men*. The best room in the house, also, instead of being devoted to social intercourse, as it should be, is given up to newspapers and silent reading. This is not an uncommon mistake, but it is a serious one. However, the Newcastle friends have done, and are doing, an admirable work, and have great reason to be thankful.

The original club and institute at *Leeds*, which was established by Mr. Darnton Lupton, J.P., in 1863, and which, I said before, has been one of the most flourishing and useful in the kingdom, though very far from being self-supporting, averages between 900 and 1,000 members through the winter months. Its eminent usefulness has given a great impulse to the establishment of clubs in the district. They have one or two entertainments at least, and one lecture, every week through the winter months, the latter sometimes varied by a discussion; also reading, writing, arithmetic, and singing classes. A natural history society meets in one of the rooms. A religious service, conducted by ministers of various denominations, is held every Sunday afternoon, and is very well attended. An excellent "Branch" for boys has recently been opened by Mr. Lupton at Kirkgate, which is doing considerable good, and relieves the men's club from the damaging presence of lads. Several hundreds pay every week for admission.

The *Duck Lane Club, Westminster*, like that very interesting undertaking in St. James's Back, Bristol (of which an account was recently sent to the Working Man by its benevolent foundress), deserves a detailed account in these columns by an article to itself. For the present it must suffice to say that from soon after its first commencement, in 1860, it has averaged between 500 and 600 members. The good which it has accomplished is very striking, and in many respects it is a model for these societies, except in so far as, being intended for rather a limited range of labouring men, it does not aim at embracing that variety of agencies necessary for most working men's clubs and institutes.

Its wonderful success has been mainly owing, in the first instance, to the untiring Christian benevolence, good judgment, and tact of its foundress, but, secondly, to an excellent committee and secretary. The club also owed much of its successful start to the wisdom, kindness, and firmness of its first secretary, a costermonger. A religious service has been always held in this club on Sunday evenings, and a few of its members have frequently met on week days, in their dinner hour, for united prayer.

Mrs. Bayly's no less admirable and useful labours at *Notting Hill*, London, should also have a paper to themselves. The whole movement, I believe, owes more, in its origin, to these two societies, and the ladies who commenced them, than to any other single cause or individual.

The club at *Holloway* deserves honourable mention. 1st, on account of the zeal and devotedness of the honorary secretary, who originated it, and of the committee, who have so ably worked with him; 2nd, because of the harmony and judgment with which the few gentlemen on the committee and the working men there have pulled together; and, 3rd, because of its indefatigable and genial steward, who, by the warm interest he takes in the club, his delight and pride in making all the members comfortable, and his firm opposition to anything like disorder or infringement of rules, has most materially contributed to the success which this very useful club has been privileged to obtain.

In the *Rotherham* Club we must notice the cordiality with which a clergyman, a Dissenting minister, and a number of working men have co-operated, the brotherly spirit manifested by the members, and the large amount of usefulness resulting therefrom. Their premises and situation, also, were good, and were turned to the best account. Unfortunately, a railway ejection compels them to turn out, but it may be hoped they will soon procure some equally good, perhaps by a limited liability company, now that the working men have learnt the value of the club, for they earn excellent wages, and might have a first-rate club-house if they chose. The committee remark, with justifiable confidence, that they believe "the club has established itself in the affections of a large proportion of the upper crust of the working men of Rotherham; and from the steady increase in its numbers, it is fair to predict much greater results than have been accomplished." This I fully believe. Nevertheless, it would not be satisfactory to find that the average number of members at the beginning of January this year was only 200, were it not that I see the age of admission then was fourteen years. As this is at least seven years too young, and the club would probably double its number of grown men if none were admitted under at least twenty-one years (though twenty-five would be far safer), no doubt the anticipations above-mentioned will be amply fulfilled in the course of another year.

The club at *Heywood* is but in its infancy, having been established last autumn. It has, however, shown such remarkable vigour and judgment, that we may confidently predict for it a very honourable and useful existence. It has already held a most successful Industrial Exhibition, by which it will clear about £30, and it actually conducts a monthly magazine, price 1d., full of interesting matter.

The *Honley* Working Men's Club is another most promising club, numbering 320 members; but it is, perhaps, hardly fair to mention these juvenile specimens, stalwart and hearty as they be, until they have had a little longer trial, else I might refer to many other hopeful babies of about the same age.

The *Guildford* Working Men's Institute, however, is of venerable estate, compared with most, having been formed *as an Institute* in 1856, I think.* It deserves attention and honour, from the great success which has almost uniformly characterised its career, and from being by far the most flourishing society, hitherto, in the Southern counties—for a considerable time averaging 600 members. It has owed much to its wise and zealous librarian; also to the judicious separation of youths from the adults, thus receiving and preparing the lads for subsequent full membership without their annoying and driving away the men in the meantime. It had not been quite so prosperous the last year, but the managers are adopting several practical suggestions, and it will probably rise to even greater prosperity and usefulness than ever, should the same spirit of wisdom and good-fellowship continue to animate its members which they have hitherto evinced.

The Working People's Association at *Pendleton*, near Manchester, and the Charleston Institute, in the same place, are specially noteworthy for the large amount of good they are doing, and the unremitting devoted labour with which they are worked. The former includes a Working Men's Institute only as one of its agencies, and has an extensive organisation for missionary, temperance, and Scripture reading purposes. Capital entertainments are given every week; large and well-supplied reading and recreation rooms are filled nightly by the factory operatives, and the indefatigable honorary secretary has reason to be very thankful for the result of all his zealous labours. The Charleston Institute is a *bonâ fide* Working Men's Club, and its members enjoy the use, rent-free, of a first-rate building erected for them by B. Armitage, Esq., who has spared no cost of time and money to promote the welfare of the industrious workers in his great factory-hives.

(To be continued.)

* Continued from page 151.

* I find I have not the exact year of its birth.

Coin from the Crucible to the Press. *

The annealing-room is fitted with three pairs of ovens, heated on the reverberatory principle, and, in fact, the counterpart of those shown in a previous illustration as existing in the rolling-room. In this case, however, cast-iron pans are used instead of copper tubes. The pans are of sufficient capacity to hold 2,804 blanks each, that number weighing precisely 60 lbs. Troy. The blanks are placed inside, in *rouleaux*, and the whole covered by wrought-iron plates, luted and made air-tight with fire-clay. In this way they are charged on carriages into the ovens, where they remain for the space of forty-five minutes, or until the whole mass of iron and gold has been brought to a red heat. The carriages are then withdrawn, and the cases, with their precious contents, deposited on the floor to cool. Other batches follow in quick succession.

When the temperature of the blanks which have been baked becomes sufficiently low for the purpose, the cases are opened, and their contents discharged into copper trays for removal to the blanching, or pickling room. This is furnished with an open boiler of cast iron, lined with lead, to prevent the action upon it of the hot diluted sulphuric acid which it contains. There are also in this apartment a number of lead-lined cisterns, for the pickling of bronze blanks—they being submitted, after annealing, to immersions, of many hours' duration, in cold acid. Colanders, carboys of sulphuric acid, and cold water cisterns, with other minor appliances and materials, make up the fitments of the blanching-room.

Into a colander the batch of golden blanks—to which alone we shall for the present direct attention — is turned, and a stream of cold water is made to impinge upon them. This completes the annealing process, and the colander is conveyed to the boiler and placed in the hot *pickle*, as it is termed. With an ashen staff the workman next stirs them vigorously, so as to expose the surfaces of each blank to the biting effects of the acid. A minute or two of this kind of treatment suffices, and every particle of alloy in the form of oxide of copper is thus removed from the outside of the blanks, and incorporated with the acid, which is changed to a sea-green hue.† When this is accomplished, the colander is lifted from the boiler, and such films of acid as may adhere to the gold are washed away by a forcible stream of cold water, to the cleansing effect of which it is submitted. The change in the appearance of the blanks by this time is marvellous. From being a dull and brassy-looking collection of dumps, they are transformed into apparently brilliant discs of virgin gold, and their true characters cannot now be mistaken. As they have had their baths they require drying, and they are, consequently, transferred to a stove constructed for the purpose, and which is at hand. This consists of a plate of iron, beneath which are a series of flues and a fire; the upper surface being covered by *beechwood* sawdust—which answers the intended use to which it will be presently applied better than any other known material—it does not tarnish the precious metals. Into a sieve, placed on iron bars stretching across the stove, and which holds some of the sawdust, the blanks are put, and smartly agitated by the attendant. The sawdust, of course, passes down through the meshes of the sieve back upon the stove-plate, where its dampness speedily evaporates. The blanks remain even brighter than before, for the slight friction has had the effect of polishing them. To free them from fine portions of dust, they are next put into a perforated copper cylinder, or "muffle," and this, inserted into a heated air-bath, is shaken dexterously. Now, therefore, the blanks are soft, clean, perfectly dry, and prepared to receive from the dies those impressions which fit them for the performance of their subsequent mission, and which make them ministers of good or agents of evil, as their future possessors may be actuated by virtuous or vicious proclivities.

Silver blanks of all denominations, it may be said, pass through processes almost identical with those explained in regard to gold, the acid employed being, however, a stronger solution. Silver pieces are, in point of fact, *frosted* by their immersion, all traces of copper on their exteriors being absorbed by the pickle. Bronze pieces undergo operations so slightly differing from those performed upon their richer relatives, that they need not here be further alluded to. Being composed of a common material, they are more roughly treated, and are shaken in the drying stage by machinery instead of gentler hand manipulation. Let us return, therefore, to our gold, batches of which have been passing in rapid succession through fire, water, &c., towards what is literally their crowning destination, the stamping-press.

The Coining-press room at the Mint is a very handsome apartment, as will be seen from the illustration given in the last chapter. It is 70 ft. in length, 30 ft. in width, and 15 ft. in height. The central part of the room is occupied by a stone platform, encased with iron plates, and this forms a base for the eight presses which make the sum total of the stamping machinery of the establishment. The presses themselves are of compact and symmetrical construction, and very massive. Each machine, indeed, weighs nearly two tons, and they are all firmly bolted down upon beds of Portland stone. Two lines of oaken columns, extending from the platform to the ceiling, encompass the presses, and iron bars stretching across the platform connect them (the columns) together in pairs. The bars also support buffers, composed of alternate layers of wood and leather, and which limit the travel of the fly-arms of the presses. Through the centre of each of the latter passes a coarsely-pitched, treble-threaded screw. But, perhaps, it will facilitate the comprehension by our readers of the action of the stamping machinery if we confine our attention to a single press, the whole being made on precisely the same principle. The screw, of which mention has just been made, supports two vibrating arms. These are of iron, their ends terminating in boxes of the same material, and which may be loaded with weights to give more effect, when needed, to the blows which are to be administered to the metal discs below. From the centre of the arms of the press rises a hollow, trumpet-like shaft, which passes through the floor of the chamber above the press-room, and is the medium for communicating motion to the screw. To the lower end, or point, of the screw is attached the upper die-holder; and immediately below this, on the base of the press, is firmly screwed the lower die-holder, both being fitted with set-screws for attaching the dies.

On the floor above the press-room, and in a chamber behind it, are the appliances for communicating the vibrating motion required for raising and depressing the upper die, which alone moves, the lower one being a fixture. The arrangements for working the press are curious, and before proceeding to explain the exact mode of stamping money, something may be said in explanation of them. For many years those arrangements were made a great mystery of, and the machinery composing them was known as the secret department of the Mint, to which no ordinary visitor was ever admitted. There are no "secrets" in the establishment at present; and, indeed, the age of mysteries is rapidly gliding away. Of course, the prime mover of the presses is the steam-engine, but it performs its mission indirectly, and through the agency of an air-pump. This latter is attached to the beam of the engine, and its duty is to exhaust a vacuum tube, which extends along the whole length of the press-room, but which is not seen from that apartment. A barometer-gauge and a weighted relief-valve enable the attendants to regulate precisely the extent of the vacuum within the chamber. The chamber itself is furnished with eight small pumps, placed vertically at intervals along it—one pump, that is, for each press. The pumps are open at the top, and pistons move freely within them. Below the pistons, in each case, are two small disc-valves, one opening outwardly to the atmosphere, and the other inwardly to the vacuum-chamber. Small levers and springs serve to open and shut, self-actingly, the valves. The piston-rod—taking again one machine for illustration—is extended above the pump, and is attached by means of links to a small horse-head crank, which is connected by a horizontal bar of iron to a lever on the upper end of the trumpet-shaft of the press.

(To be continued.)

* Continued from page 149.

† The quantity of alloy thus disposed of has been already allowed for by the small extra portion introduced into the crucible, as described under the heading, "Melting-house."

Professor Fawcett, M.P., on the British Labourer.

Under a well-chosen title, and in a well-written book, Professor Fawcett discusses the "Economic Position of the British Labourer." The volume published under this name consists of lectures addressed by the author to his Political Economy Class at Cambridge University. Considerable personal interest, as our readers are aware, attaches to the author, as being the first blind Member of Parliament ever elected. To have attained such a distinction, in spite of such a calamity, and so great a disadvantage, implies great force of character, and the possession of no ordinary talents. Had Mr. Fawcett been a military officer, maimed in some memorable engagement, in which he had borne a distinguished part, legislatorial elevation had been intelligible as a honorary reward for past services; but to be sent to Parliament in expectation of services to be rendered under physical disability which destroys the energy and hope of ordinary men, is, in itself, a memorable and honourable distinction. Since the singular accident, by a gun-shot wound, which destroyed the sight of both eyes, Professor Fawcett has published a "Manual of Political Economy" of very great merit, and now he has added to the obligations the public are under to his pen, by publishing a new volume, bearing the practical title we have cited—the "Economic Position of the British Labourer."

This is a book which concerns the working man. Viewed from the point of his economic position, a new field is opened as to his condition. The field is spacious and instructive, and the author sweeps it with a strong and clear mental glance. There are expressions in the book very curious, and some surprising; but these it would seem hypercriticism to enumerate, when the conception of the work is logical, its sentiments bold and generous, and the treatment of each topic clear and consecutive.

Nationally considered, the economic position of the British labourer is bad, and ought to be amended—and can be amended. This is the moral of Professor Fawcett's book. This doctrine, coming from one who has charge of the education of our youth in one of our chief universities, has special value on that account. What is said by one in such a position will have the attention of those who influence, and will in the future influence, public affairs. What is said from the chair of political economy of the Cambridge University becomes matter of authority. The author writes with an accuracy of thought which can be trusted; he speaks as one under responsibility, and his words can be quoted. They are of value, too, as an indication of what the author's career must be in Parliament. Professor Fawcett is an astute, shrewd man. He perfectly comprehends the position which he has sought and won, and he is fully aware that his words are pledges of his principles. He will be judged by the standard he sets up. Publicly and personally, therefore, his words are worthy of study.

In his earlier pages of the work of which we speak, Professor Fawcett lends confirmation to an opinion that many already definitely entertain—that hired labour will pass away, and be succeeded by associated labour. The honourable member's life has been passed in a very different county from Buckinghamshire; yet the picture he gives of the position of the agricultural labourer as he has seen it, is exactly what we have witnessed no farther from London than Bucks. "Theirs," he says, "is a life of incessant toil for wages too scanty to give them even a sufficient supply of the necessaries of life. No hope cheers their monotonous career. A life of constant labour brings them no other prospect than that, when their strength is exhausted, they must crave, as suppliant mendicants, a pittance from parish relief." Then he asks, with honourable indignation, "Will generation after generation be content to pass the same dreary existence, when, in other countries, with a climate as healthy as our own, with institutions as free, they may at once become landed proprietors, and they may see definitely placed before them a career of affluence and prosperity?" Such a question, so pertinently put, is calculated to penetrate even the dulled perceptions of the British agricultural labourer, and may possibly awaken feelings of wise and emigrant intentions in the minds of a

class of artisans who can least be spared from our midst.

How is it that England has been brought into the condition in which her labourers fare so wretchedly? Who has brought this to pass? Can it be true that our aristocracy are the mainstay of this land, and have not prevented this? England was not always in this condition. Five centuries ago, Chief Justice Fortescue, who was afterwards Lord Chancellor of Henry VI., gave a very different account of the condition of England question. He knew the country well; and when he was preparing a royal prince for residence here, he, in a splendid passage, said:—

The country of England is so filled and replenished with landed men, that therein so small a little hamlet cannot be found wherein dwelleth not a knight, an esquire, or such householder as is there commonly called a Franklin, enriched with great possessions, and also other freeholders, and many yeomen having sufficient estate to make a jury.

The author of an important work on "Self-Government," Mr. Toulmin Smith, a fully informed writer on old English life, says:—

It follows that, in his (Fortescue's) time, there were, at the least, forty-seven freeholders in every hamlet; and the proportion of male adults to inhabitants being one to five, this implies that almost every grown man was a freeholder.

Where are the freeholders now? Masses of indigent labourers, as we know them now, were unknown in England then. If any one doubts it, let him turn again to the quaint and graphic pages of Lord Chancellor Fortescue, as translated by John Selden, and read this picture of England five centuries ago:—

Every inhabiter of that realm useth and enjoyeth at his pleasure all the fruits that his land or cattle beareth, and with all profits and commodities which by his own travail, or by the labour of others, he gaineth, by land or by water. They drink no water, unless it be so that some for devotion, and upon a zeal of penance, do abstain from drink. They eat plentifully of all kinds of flesh and fish. They wear fine woollen cloth in all their apparel. They have also abundance of bed coverings in their houses, and of all other woollen stuffs. They have great stores of all hustlements and implements of household. They are plentifully furnished with all instruments of husbandry, and all other things that are requisite to the accomplishment of a quiet and wealthy [well-to-do] life, according to their estates and degrees.

There were no Lambeth workhouses in those days needed, nor employment for "Amateur Casuals." We hear a good deal of going forward. It would be well could the British labourer go back to the days of Henry VI.

But to return to Professor Fawcett's book. He clearly apprehends the nature of the social forces now happily at work. He describes "Co-operation as the inauguration of a new era," which he thinks needed. Pauperism is disgracefully gigantic. The agricultural labourer has no motive for industry and saving: between employer and employed no common interest exists; the country is in danger of losing its best workmen as soon as the opportunities of emigrant prosperity are understood. It is time we had peasant proprietorship in the country and co-operative factories in town. Primogeniture and right of entail restrictions on the sale of land should be removed. Such are the positions, stated with great clearness and reasoned out with force, which occupy the pages of Professor Fawcett's book. Though addressing a class no doubt familiar with legal and technical nomenclature, the lecturer insinuates rather than obtrudes definitions of such terms as primogeniture, intestacy, entail, and similar words, upon which it is essential the reader should have definite and accurate notions. Sometimes the definition is concealed in an illustration, sometimes suggested in explanatory remarks; but it is there, and there so plainly, that the ordinary workman can understand the matter. The author is wise in that experienced school described by Pope (in which so few are proficient), who said,—

"Men must be taught as though you taught them not,
And things proposed as new as things forgot."

The "Economic Position of the British Labourer" is worthy a working man's perusal, not alone for the instruction it contains, but also for the way in which it is conveyed. One great subject is conceived, its general relations are grasped, and the author always keeps to his subject. He makes Roman roads through it; he keeps the reader on broad highways; he makes no discursive bye-paths to everywhere out of it. The reader knows what place he has left, and where he is going to. He can tarry on the way if he chooses, but he never loses his way; he can return if he is so disposed, or he can take up his staff (of attention), and continue his journey to the end. The author is master of the situation, and he makes his reader master of it too.

Things Talked About.

Among the shareholders in Greening and Company (Limited), at Manchester, is Mr. Thomas Hughes, the member for Lambeth; and he, we are informed, is the writer of an address just issued to the workmen and others in the employ of the company. We recently announced that the workmen had been specially invited to take up shares in the company, and that invitation is enforced in very emphatic terms by Mr. Hughes. His words are worth weighing by others who are not connected with the firm he represents. He says—"We ask all of you who are in the employ of the company, shareholders and non-shareholders alike, to remember the great principle which is at stake in our undertaking. We have come to you of our own accord, in the faith that business may be carried on successfully where all are, in the fullest sense of the word, fellow-workers. We come to you with faith in our principles, with trust in you, with a successful-going business. Have *you* faith in that principle which is yours as well as ours, which has its warmest advocates amongst your own ranks? Will you trust us, and meet us half way, shaking hands over all past antagonism, and setting your faces resolutely towards the new future which is now opening to us all? If you will do this loyally and in good faith, helping to make this company known to the trade for thoroughness of work, for punctuality, for trustworthiness of all kinds; if you will be careful of all material entrusted to you, jealous of the least waste, willing to help each other and to help us, then we, on our part, have no fear whatever as to success, and are quite ready to stake our credit upon the issue."

Most heartily do we hope that none of our readers may ever have personal experience of the casual ward of a workhouse; but as none of us can be destitute of sympathy for the very poorest and most wretched of our fellow-creatures, and as every rate-payer can do a little towards obtaining a remedy for a state of things disgraceful to a Christian country, we direct attention to a remarkable paper in the current number of *Temple Bar*. Mr. Parkinson, a gentleman connected with the *Daily News*, who has devoted himself to the task of exposing the laxities and cruelties attending the parochial administration of the Poor Laws, has discovered one of the inmates of the now famous Lambeth casual ward, on the night when Mr. Greenwood witnessed the scenes he so powerfully described in the *Pall Mall Gazette*. This man, who had received a better education than generally falls to the lot of tramps, and is evidently possessed of good, though sadly misused abilities, amply confirms all Mr. Greenwood's statements, and adds, from his own experience, descriptions of the casual wards of nearly all the metropolitan workhouses. It is a fearful record of insolent, ignorant indifference and inhumanity on the one hand, and of recklessness and depravity on the other. It was time, indeed, for the Poor Law Board to interfere, and enforce upon so-called guardians the necessity of at least attempting to do their duty.

The preparation of a new Reform Bill has called forth abundant statistics, not only in response to the Ministerial demand upon various official departments, but also in the pages of influential periodicals. When they are analysed and compared, we shall obtain a clearer view of the real position of the working man as a member of the State than hitherto we have been able to obtain. A writer in the *Edinburgh Review*, a year or two since, devoted an article to an examination of the incidence of taxation on the labouring classes, and the *Pall Mall Gazette* has enlarged upon the idea. The result is thus stated:—"The working classes (of the United Kingdom), whom we may take at 23,000,000, with an aggregate income of £230,000,000, pay about £26,000,000 in taxation—that is, nearly 23s. a head, or 11½ per cent. of their income. The upper and middle classes, about 8,000,000 in number, with an aggregate income of £350,000,000, pay £58,000,000 of taxes—that is, £7 10s. per head, or 16 per cent. on their income." The writer says, with some warrant for the statement, "On the whole, the industrious and the sober labourer comes off tolerably cheap, and may escape altogether if he pleases. If he confines himself to strict necessaries, he pays no taxes at all. If he chooses to consume taxed commodities, he does so voluntarily, and he does so, it is presumable, because he can afford the indulgence." This is worth thinking about. Figures show that the working classes annually contribute nearly £8,000,000 (or about three-fourths of the whole amount) to the duty imposed on British spirits; £1,500,000 to the impost on rum; more than £4,000,000 to the malt tax; and nearly £5,000,000 to the duty on tobacco and snuff. Altogether, about £18,500,000 is paid by working men for the privilege of indulging in articles which they certainly might dispense with without any very great injury—perhaps with very great benefit.

Earl Brownlow, who owns Ashridge Park, near Berkhampstead, appears to entertain an impression that a portion of the tract known as Berkhampstead Common is his property. Accordingly, a few weeks since, he enclosed a space about two miles long and rather more than a mile broad, with strong iron railings five feet high, altogether a very substantial enclosure. Now, Mr. Augustus Smith, M.P., lord of the Scilly Isles, is also a landholder at Berkhampstead, and as such claims his share of common rights. The poor cottagers in the neighbourhood are not strong enough to enter upon a contest with a Peer of the realm; but Mr. Augustus Smith is, and set to work much in the same fashion that northern earls and barons formerly maintained their border rights. He engaged an army of blacksmiths, 120 strong, chartered a special train from Euston Square, and at one o'clock on the morning of Tuesday, the 5th instant, the resolute band marched from Tring station to Berkhampstead Common, and made very short work of removing the offensive rail. When morning came, the neighbouring villagers heard of the bold feat, and, we are told, "the inhabitants of the adjacent village and district flocked upon the scene. In carriages, gigs, dog-carts, and on foot, gentry, shopkeepers, husbandmen, women, and children, at once tested the reality of what they saw by strolling over and squatting on the common, and cutting and taking away morsels of gorse, to prove, as they said, 'the place was their own again.'" Of course, lawyers will now take the matter in hand; and if Mr. Augustus Smith succeeds in proving that he only resisted an unwarrantable encroachment on a popular right, the lesson will not, probably, be without its uses to those who "steal the common from the goose."

We see, by the way, that Mr. Cowper, the First Commissioner for Public Works, has given notice, in the House of Commons, of his intention, on an early day, to move for leave to bring in a bill for the improvement of commons in the neighbourhood of the metropolis, and the protection thereof.

Petitions are pouring into the House of Commons in favour of the Artisans and Labourers' Dwellings Bill. The medical officers of health, who best know the evils of overcrowding, are foremost in the ranks of the petitioners, and incumbents of parishes and churchwardens are also sharing in the good work. A rather curious suggestion is thrown out on the subject, and that is, the utilisation of railway arches as dwellings. We should think the perpetual vibration would have an injurious effect on the health of the inhabitants. Something better than that must be devised. The suggestion looks like an ingenious attempt, on the part of some of the railway companies, to obtain rent for what is now comparatively useless to them, and so, positively, be rewarded for the evils they have themselves caused.

Grudgingly, indeed, the companies yield to the necessity of making some concession to the convenience of working men. Some of the metropolitan lines, indeed, run special "workmen's trains," at low fares; but they are now applying to Parliament for bills to lessen their liability in the case of accident to third-class passengers. Already the liability is limited to £100 in the case of passengers by workmen's trains, and that restriction they wish to apply to all third-class passengers, who are quite neglected enough as it is. We trust the application will be refused.

The Corporation of Liverpool have purchased of the Earl of Sefton a large tract of undulating land, with an area of nearly 400 acres, for a public park. It is proposed to lay it out in splendid style; and it can scarcely fail to be a great boon to the townspeople.

At the Durham Assizes, Mr. Justice Mellor had occasion to condemn most emphatically the plan of paying wages at public-houses. He said, "The amount of mischief and crime arising from this mode of paying wages in this county is far greater than all the churches and chapels that can be built will remedy. I have had seven cases to try of crimes of violence imputed to men apparently of good character when sober, who have all been tried on serious charges of felonious wounding, and all under the influence of drink." His lordship concluded with expressing a hope that employers would alter this practice of having men paid their wages at public-houses. "Decent men began with calling for a glass or a pint of ale, not intending to drink more, and they went on drinking until they became intoxicated, and frequently lamentable acts of violence were the consequence." Not in the north alone, but in London and other large towns, has this pernicious practice prevailed; not always by the desire of the employers, but because the wages of a number of men are sometimes paid in a lump sum to a foreman, who chooses the public-house as the pay place. The system is essentially wrong.

The London painters are determined to emancipate themselves from what they call the "evils of public-house meetings," and are getting up a company on the limited liability principle, for the establishment of a "Painters' Hall, Library, and Reading-room." The hall is to accommodate a thousand persons, and there are to be other rooms, which, with the hall, may be occasionally let for trade and society meetings, and other analogous purposes. The temporary offices of the company are at 39, Upper John Street, Fitzroy Square.

Trade movements are active among the men engaged on the Thames. The free watermen and lightermen have had a meeting for the purpose of establishing a

trade protection society, with the object of securing an advanced rate of wages, doing away with Sunday work, and obtaining an amendment of the Watermen and Lightermen's Act. There is a strike among the barge-builders, who have nearly all gone out on a demand for an increase of wages.

The short time movement has obtained legislative sanction in America, the Ohio House of Assembly having passed a bill fixing eight hours for a day's labour in that State.

Happily there has been no necessity for the employment of the military called out in consequence of the miners' strike near Tavistock. The chairman of the Devon Great Consols mine has addressed the men in a calm and reasonable manner, and we are glad to record that a better spirit appears to prevail. The chairman told the men that "the mine was kept open more for the benefit of the miners, because if it stopped they would be thrown into extreme distress, and this it was wished by the directors should be avoided. He had lost in Cornish mines no less than £30,000 during the last year, and this money had been expended upon the miners. The latter had, therefore, a duty to have some consideration for mining adventurers who expended their capital in setting the mines to work. If it had not been for those gentlemen's outlay, the shafts that at present existed would never have been sunk." The proprietors and agents are resolute, and at a meeting held on the 7th instant at Plymouth, agreed to some stringent resolutions. A committee was formed to take measures to found a miners' benefit society.

Several of the large coachmakers have decided to close their workshops at four o'clock on Saturdays, instead of six. Others have offered to adopt a similar course if the men will only take half an hour for dinner on Saturdays, which proposal has been refused.

Co-operative Intelligence.

The Result Co-operative Society, Cornwall Road, Brixton, held their first social gathering at the Victoria School-room, Cornwall Road, Brixton, on Wednesday, 14th February, 1866, when upwards of 200 members and friends sat down to an excellent tea, after which an entertainment was given, presided over by the treasurer. Short speeches on the Co-operative principles were ably delivered by Mr. Pocklington, from the Central Association of Co-operation. Mr. H. Kemp, the secretary, read an extract, showing the steady increase of this society, which had only been established seventeen months, and had sold goods amounting to £3,404 19s. 0½d., realising a profit of £527 11s. 9½d., from which, after paying £5 per cent. interest, reducing fixed stock at £15 per cent., and paying all management expenses, sufficient had been left to pay an average bonus of 1s. 6½d. on every pound laid out by the members. The total number of members on 31st December, 1865, was 181, and their united capital £415 7s. 3d. The proceedings of the evening were enlivened by a musical entertainment, which elicited much satisfaction. The above, with some recitations, made up a very agreeable evening's enjoyment, and has given a stimulus to the principle in our neighbourhood. After a vote of thanks to the chairman, officers, and friends, and to the trustees for the use of the school-room, the meeting separated.

Cheap Meat Association at Leeds.—In consequence of the present enormous prices charged for meat, a Co-operative Cheap Meat Association has been established in the north-east and east wards of Leeds, and a large business is expected to be done. About 200 shares have already been taken up.

Barnsley (Yorkshire) British Co-operative Society.—A special general meeting of the shareholders of this society was held recently, in the Market Street School-room, Barnsley. There were nearly 100 people present. The president of the society, Mr. W. Tunker, occupied the chair on the occasion, and explained the object of the meeting, which was to consider the propriety of raising more capital for the erection of new stores. He said that, through the want of more accommodation, some of the goods are injured; that salesmen cannot dispatch customers as they ought, and that, for want of better access to the drapery-room, only a limited business is done. He said that their only remedy was to build new extensions to, and make enlargements of, the buildings. On the motion of Mr. W. Hoey, seconded by Mr. J. Healy, it was unanimously resolved—"That this meeting hereby empower the building of new extensions and enlargement of the premises in Wellington Street, Barnsley." It was also resolved, on the motion of Mr. J. Barraclough, seconded by Mr. W. Ward, "That this meeting recommend the shareholders who as yet have not five shares in the society, to allow their dividends to be transferred to their shares quarterly, and no dividends to be withdrawn until the amount of five shares be made up, but interest at the rate of £5 per cent. per annum to accrue to the respective amount of shares, if above ten shillings." There was no doubt entertained that there would be any difficulty in obtaining the amount required for the new building, fixtures, &c., which will be nearly £1,000. This sum will be derived from one year's profit, at the present rate of the society's operations.

General Information.

CLUBS AND INSTITUTES.

The Albert Working Men's Club, Knightsbridge.—We have just received the very interesting report of the above club, containing the account of their progress for the first half-year, by which it appears that it is highly successful. It was founded by Mrs. M'Garel, (Belgrave Square), and was opened at a meeting held last June, presided over by Lord Radstock, and attended by Lord Harris, Chamberlain to H.R.H. the Prince of Wales, the Hon. A. Kinnaird, the Hon. W. Ashley, Mr. Judge Payne, and other gentlemen, who addressed the meeting. The Rev. H. Solly was prevented from being present by having to attend another meeting. 200 working men were present, 63 of whom were enrolled as members. Since that time members have been enrolled to the number of 400. The club-house consists of refreshment and smoking-room on the basement story, general reading-room and committee-room on the first floor, two class-rooms, and a kitchen. Adjoining the club, at the back, is a lavatory, and a hall for lectures, &c. Twelve lectures have been delivered on very interesting subjects during the half-year, which have been also attended by the wives and daughters of the members. There are addresses delivered in the hall on Sunday afternoons, and a Bible-class is held on Thursday evening. No beer, wine, or spirits are allowed in the refreshment-room, but an excellent cup of tea, coffee, or cocoa, can be had for 1d., a slice of bread and butter for 1d., and a chop or steak can be cooked if required. There is a library of about 150 volumes. The rules seem to be excellent; and we recommend any one wishing to see a club in good working order to pay a visit to the Albert Club. If the committee could see their way to allowing refreshments to be sold in the middle of the day, instead of in the evening only, it would be an improvement; but, even as it is, it is a great benefit to its members. To use the words of a contemporary in speaking of this club, "with chess, draughts, classes for education, classes for singing, a reading-room, a smoking-room, and a library, who should not be content?"

Working Men's Club and Institute Union.—The usual monthly tea-meeting was held in the office of the Union on Thursday, the 1st March. Notwithstanding the inclemency of the weather, it was very well attended, and much interesting discussion took place. The question which formed the chief subject of conversation was the consideration of the admission of youths into clubs, at what age persons should be admitted as members, and, if youths are admitted at all, under what regulations they should be placed. As this whole matter will be specially handled by the Rev. H. Solly in a future number, it is unnecessary at present to say more on the subject.

The London Association of Foremen Engineers.—On the evening of Saturday, the 3rd inst., the ordinary monthly meeting of members of this society took place at its rooms, Doctors' Commons, City. Mr. Joseph Newton, of H.M. Mint, president, filled the chair, and the subjects discussed were of considerable interest, public as well as professional. It was the general opinion that a more commodious place of assembling must, ere long, be obtained, so rapid is the growth of the institution. The question of establishing a hall and library, exclusively for foremen engineers, is one which has often before engaged the attention of the committee, and there can be no doubt that such an arrangement would be highly beneficial, not only to foremen, but to employers, who must derive advantage from the increasing intelligence of their *employés*. We trust that the aspirations of some of the leading members of the association in this direction may one day, and that not distant, be realised. The main interest of the proceedings of Saturday was centred in the reading of a paper by Mr. J. M. Oubridge (of Messrs. Simpson's, Pimlico), on "The Various Modes of Smelting Iron." The author traced succinctly the history of the art, from the very earliest periods, in this and other countries, and illustrated his subject by diagrams, drawn *en courant*, explanatory of primitive and modern methods of smelting. The paper was listened to with marked and critical attention, and at its conclusion Mr. Onbridge received a well-earned vote of thanks. Messrs. Keyte and Briggs joined in the discussion which followed, and which was finally adjourned to the next meeting, on the first Saturday in April. At eleven p.m. the meeting was dissolved.

Edmonton and Tottenham United Working Men's Club.—A public meeting has been held in the large school-room, Upper Edmonton, for the purpose of furthering the objects of the Edmonton and Tottenham United Working Men's Club. Viscount Enfield, M.P., had kindly consented to take the chair, but was unfortunately prevented by the death of a very near relative. In his absence the chair was occupied by Edward Busk, Esq., J.P., of Winchmore Hill. The meeting, which was very well attended, was addressed by the Rev. H. Solly and other gentlemen of local influence. There is a peculiarity in the way in which this club has been started, which deserves to be specially noticed. On other occasions it has been usual for persons of property in the neighbourhood taking an interest in working men's clubs to subscribe to the amount of from £50 to £100, or even more, for the purchase of furniture, books, &c., and other preliminary expenses; but in this case the men themselves are making a successful effort to raise the necessary sum by a limited liability company. They propose that the capital should be £250, in 1,000 shares of 5s. each. 200 shares have been already applied for; and the directors appeal to all classes who feel an interest in the moral and social welfare of the neighbourhood to aid them by taking shares. The proposed subscription for members is 2d. per week, which, the directors calculate, will be amply sufficient for the working expenses of the club, and will also yield a good dividend to the shareholders.

WAGES AND STRIKES.

The Building Trade at Woolwich:—About 700 operatives in the various branches of the building trade at Woolwich and Plumstead have struck work, consequent upon the refusal of the employers to accede to a memorial, recently sent in by the men, requesting the privilege of leaving work on Saturdays at one o'clock, as is now the general custom in the London district of the building trade. The men have held a large meeting, in which they pledged themselves not to resume work until the one o'clock time was conceded. Amongst the number who have thus turned out are 169 men from Mr. Kirk's shop, 152 from Mr. Tongue's shop, and the remainder are made up from the smaller shops. The strike comprises both society and non-society men, and, to support the latter and the labourers, who have no union to fall back upon, the committee have issued an appeal to the trades at large. The following employers in the district have conceded the request of the men—viz., Messrs. Matthews, Blake, Capper, Saunderson, Barnes, Burch, and Reed.

Meeting of Engineers.—A crowded meeting of operative engineers has been held at the "Yorkshire Grey" Tavern, High Street, Stratford, in furtherance of the movement for the advance of 10 per cent. on the present wages. Mr. Bentley occupied the chair, and the meeting was addressed by Messrs. Clark, Giffard, Horn, Trench, and several other operatives, all expressing their opinions that the time had now arrived when their labour required to be more fairly remunerated, and an especial effort made to raise the wages paid in the low-priced shops. Any idea of a strike was deprecated if it were at all possible to avoid it, and it was urged that the advance could be obtained either by a general conference between the masters and men, by deputations from the men in each shop waiting upon their respective employers, or by arbitration. The whole question in all its bearings was long and earnestly discussed, and a resolution was adopted, "That the men in the Stratford district should co-operate with the general committee to promote the movement."

Hand-loom Weavers at Barnsley.—On Monday, the 5th inst., the hand-loom weavers in the employ of Messrs. T. Taylor and Son, the well-known linen manufacturers, celebrated an advance of from 10 to 15 per cent., which has just been given to them on all kinds of work. The firm also gave them £5, which they expended in a tea-meeting at the "Albion" Inn. During the evening votes of thanks were accorded to the firm for their liberality. The evening was spent in a pleasant manner.

Masters and Operatives. Lord St. Leonards' Bill.—An adjourned meeting of trade delegates has been held at the "Bell," Old Bailey. Mr. Robert Danter, president of Trades' Council, and chairman of the Amalgamated Society of Engineers, &c., presided. The delegates appointed to represent the different trades at this and previous meetings, for the consideration of Lord St. Leonards' Bill, were accredited by a number of working men amounting in the aggregate to nearly 100,000. After some discussion the following resolution was carried:—"That this delegate meeting of the London trades, having discussed the principles and objects of the Bill brought forward in the House of Peers (1865) by Lord St. Leonards, entitled 'Conciliation of Equitable Councils Bill,' composed of masters and operatives, for the settlement of disputes and differences, as set forth in the Act 5 George IV., cap. 96, and for extending to the said councils, by the mutual consent of both parties (to the dispute), any other matter relating to the peace and welfare of masters and operatives, notwithstanding the dispute may have reference to further contracts or bargains respecting wages, hours of labour, or other questions which may from time to time arise, reserve to ourselves to suggest such alterations in the details as may seem necessary. Further, that the delegate meeting recommend that all disputes and contracts to serve be submitted to the said councils for adjudication and settlement, and that the power given to enforce awards, as set forth in the said Bill, be extended to all disputes arising out of contracts to serve (except contracts relating to servants in husbandry)."

Large Meeting of Master Builders in Manchester.—On Wednesday, the 7th inst., the annual meeting of the General Builders' Association was held, at the Palatine Hotel, in this city, and was attended by about 200 delegates from the various towns in England and Scotland. Mr. Henry Lovatt, of Wolverhampton, president of the Association, took the chair. A lengthy discussion took place on the subject of contract

agreements, the method of taking "quantities," and other things affecting the relations existing between contractors, engineers, and architects. A very general opinion was expressed that but little difficulty would be experienced in placing such matters on a footing much more satisfactory to the trade. The question of trade disputes then occupied the attention of the meeting; and, although some very severe remarks were made on the arbitrary conduct of the operatives in respect to their interference in preventing the masters employing apprentices and workmen who do not belong to the unions, on the whole a kindly feeling was expressed towards the workmen, so far as regards their right to share in the general prosperity of the country, and to be well remunerated for their labour. A determination was generally expressed not to allow Saturday to be further shortened; and a strong and very unanimous desire was evinced that all workmen should be paid by the hour. The latter question was specially referred to the committee for consideration.

BUILDING AND BENEFIT SOCIETIES.

Temperance Permanent Land and Building Society.—The twelfth annual meeting of members was held on Wednesday evening, February 28th, in the large room at the London Coffee House; Mr. William Tweedie in the chair. Over 500 members were present. Mr. Henry J. Phillips, the secretary, read the annual report, from which it appeared the gross receipts for the year were nearly £100,000 in excess of those of the preceding one, having amounted to more than £257,000. This increased the total receipts of the society to £930,000. The subscriptions and repayments of advances received amounted to nearly £158,000, being about £58,000 in excess of the previous year. The sums received on deposit at 5 per cent. interest amounted to £57,300, being about £22,000 in excess of the preceding year. The cash advanced upon houses during the year was nearly double that of the previous year, and amounted to £178,950. The amount remaining out on mortgage of houses and land at the close of the year was £345,600. The total sum advanced on houses since the commencement of the society had exceeded £550,000. After providing for expenses of management, and writing off all losses on properties sold, the directors had been enabled to appropriate profit to investing shareholders at the same rate as heretofore—viz., 7½ per cent. per annum on the subscriptions to the credit of the shares in force, and on those withdrawn during the year (in addition to the profit paid on withdrawal), 4 per cent. per annum for the portion of the year expired prior to the receipt of the notice of withdrawal, and also to carry to the reserve or contingent account a sum by which that amount had been increased to £41,947. The chairman, in moving the adoption of the report, congratulated the members upon the highly satisfactory position of the society, and commented upon the facts that the society consisted of between 7,000 and 8,000 members, had issued over 44,000 shares, had advanced money upon nearly 3,000 houses, and at the same time the society had been used to such an extent by members as investors, that over £100,000 had been withdrawn in comparatively small sums; while, at the same time, the amount of subscriptions remaining in the society to the credit of the investing members exceeded £218,000.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

NEW USES OF CORRESPONDENCE.

To the Editor of the Working Man.

Sir,—Could you permit one, not exactly a workman, but yet interested in the movements and progress of working men, to take an occasional part in the interesting discussion arising in your columns? Besides the very useful expression of opinion entertained by working men on subjects of trade interest, and complaints of unfair treatment from which they seek protection through your columns, there are the uses of suggestion. Among your thoughtful and practical readers there must be many with fertile minds, possessed of many highly useful notions, to which they never give expression—because they are not aware that they could possibly be of service to any one. In America the very air teems with inventions, and all sorts of ingenious mechanical ideas, which are known in this country by the familiar name of "Yankee notions," and many of them are remarkable for their ingenuity and practical value. In fact, the Americans have quite a pre-eminence among mechanicians on this very account. There is no manner of doubt that English working men are, as a rule, as clever as American working men; but they have more reticence; they have less push in them; they are less in the habit of utilising their thoughts; they do not put them to account, nor make money of them, nor run to the patent agent with them, nor write to the newspapers about them, as the acute, lively, bustling, wide-awake, adventurous, "go-ahead" nephews of Uncle Sam do. But we certainly might have something of this with great advantage in England. In one way, which I hope you will think unobjectionable, which I am sure would be practically useful, this might be done through the medium of your paper, the Working Man. It is this:—

Working Men's Exhibitions are being constantly opened. You have remarked that in these exhibitions there is observable a deficiency of inventive power among the contributors. I think, upon reflection, that this is true, and I am sure it is remediable; and this has set me writing to you now. My idea is, that workmen, having observed a want of one kind of invention or other, might write to you, and say what article it is that they think could be supplied. These suggestions would meet the eyes of a number of clever mechanics, who could undoubtedly invent a thing wanted, when they know what it is that is wanted, but who would never think of it to the day of their deaths if left to themselves. The power of conceiving and contriving are very different gifts. Those who can conceive cannot always execute, and those who can contrive cannot always conceive. Now, if your columns were used for the purpose of suggestion to mechanics, we should soon have very superior industrial exhibitions to any we have now.

Take an example (a more successful one might be given, but it will illustrate my meaning). All who have visited recent Royal Agricultural Exhibitions, or ordinary provincial Agricultural Shows, have seen exhibited on the stalls a variety of meat-chopping or sausage machines. These are very useful in families which can afford to buy them, and where meat is consumed largely. But a machine much cheaper as regards expense of production, and more useful wherever bread is eaten—and that is everywhere—might be produced: I mean a crust-crushing machine. Perhaps a crust-grinder would more accurately express what I am thinking of. Neither a sausage, coffee mill, nor a meat-chopping machine would grind crusts. A flour mill would not answer. Perhaps a pea mill would—but I know of no portable pea mill.

In the families of the poor, as well as the rich, crusts are always unpopular, and shirked by young and old. It is true, a thrifty housewife will attempt the consumption in milk and broth, but this is also not always successful. The juvenile appetite will express resentment at continual broths and sops. Then there are those disagreeable "end-bits" which have a perverse doughy consistency which very few town children can be got to eat, and always do it under protest when they do consume them. It is supposed by weak-minded persons that the crusts and "oughts" can be got rid of by soaking and beating them up into bread puddings. The soaking is possible, but it is seldom more than half done, and the beating up is always a failure. Bread-pudding is always remarkable for its doughy lumps. The London eating house pudding has this peculiar malady; but if a crust-grinding machine were available for family use, all crust and neglected pieces of bread could be allowed to lie by until they were perfectly stale, hard, and dry. The dryer the better for use—the staler the better for digestion. They could then be easily broken with a hammer or flat iron, thrown into the crust-grinder, and turned into a bread powder as fine as rough-ground rice or oatmeal, which a little hot water, sugar, and milk would convert into a pap for infants, as nutritious as Robb's biscuits, or into puddings, into which the judicious admixture of an egg would make as nice as cheese-cakes. The mechanic who made a crust-machine of the kind I have described, cheap, easy to use, simple to fasten, safe to open and shut, convenient to keep clean, and portable to put away, would obtain the prize medal of the first industrial exhibition where it is shown, the thanks of all poor mothers and little children, and no doubt a good price for the invention from some of the purveyors of domestic machines. I could describe several other things that are wanted, and easy for an ingenious mechanic to produce, quite as useful and far more merciful in their applications.—I am, Sir,

An Overlooker.

WAGES OF SHIPWRIGHTS.

To the Editor of the Working Man.

Sir,—As a subscriber to your long-wanted and valuable Journal, I noticed in a recent impression a letter upon co-operation, by "A Blackwall Shipwright," finishing with a most fallacious assertion, which, if permitted to go uncontradicted, will be productive of immense injury to a respectable body of industrious artisans. I am requested respectfully and politely to suggest to you the propriety, Mr. Editor, by a number of shipwrights, of a direct contradiction to "A Blackwall Shipwright's" statement, that shipwrights earn from 7s. to 13s. and upwards per day. I assure you, Mr. Editor, that, of my own knowledge, at this present time there are many steady men who have been one, two, three, ay, and four weeks out of employ, and I could with truth say more. It is but within the last month that shipwrights have claimed 7s. per day, by a deputation of workmen from the Shipwrights' Provident Union, who waited upon the builders, stating that the high price of provisions and house-rent required that 7s. per day should be the standard wages for the future, and to which—to their honour be it stated—they unanimously assented. Mr. Editor, we earnestly hope that you will be kind enough to give this a corner in your widely-circulated Journal.

A Blackwall Shipweight of Thirty Years'
March 6th, 1866. Experience.

THE CAMDEN TOWN WORKING MEN'S CLUB AND INSTITUTE.

To the Editor of the Working Man.

Sir,—I shall be glad if you will allow me to correct an error into which our excellent friend the Rev. H. Solly has fallen in his remarks upon the Camden Town Club in your last issue. Mr. Solly says "The only ground of apprehension with regard to this Club, *but it is a serious one*, and requiring constant attention, is, that it has been so good that the tradesmen in the neighbourhood use it, and the class of working men by whom these clubs are especially needed is not so fully represented as one could wish."

This is a grave objection; but Mr. Solly must have misunderstood the information upon which his remarks are grounded, as the following analysis of the committee of the club will show that the governing body is composed mainly of working men:—Three journeymen upholsterers, one carriage-maker, one bookbinder, one cook, one fret-cutter, one glass-painter, one tinplate-worker, two pianoforte makers, three printers, one telegraph machinist, one tailor, one Press reader, one china-ware man, one painter, and five clerks.

March 9th, 1866.

TO CORRESPONDENTS.

H. B. Thorne.—Having obtained the colouring matter by the processes we have given, you can add as much whiting to it as you please, but of course the more you add the weaker or paler will be the colour. There is no cheaper mode of obtaining the pink than that we have given, as it abstracts all the colouring matter of the wood at the least cost.

G. B. B.—The double bond executed by a single surety would be a fraud upon the society seeking protection by it. The simplest and best security is for the treasurer to hold paid-up shares to the amount of the security demanded of him.

The Bridgeton Working Man's Club.—In No. 7 of the Working Man, we stated that the Club was held at Paisley, instead of Glasgow. The correspondent who favoured us with the notice, sent it in the form of a cutting from a Paisley newspaper; and that led us into the error.

Amateur Architect.—We hope that we shall soon be in a position to put the subject of cottage architecture in a comprehensive manner in the Working Man.

A Working Man.—Every cart conveying coals to a retail customer, must carry proper weights and scales, and the carman is bound to weigh the sacks if called upon. The penalty for neglect or refusal is forty shillings.

A Mechanic (Sunderland).—The address given is in London.

Locomotive.—The motive power is obtained instantaneously by the sudden liberation of the ammonia gas condensed in the water, upon the application of heat. A coal fire is not necessary; coke or gas as fuel would be preferable, as yielding no smoke. Ammoniacal gas is obtained by heating a mixture of hydrochlorate of ammonia and quick-lime.

A Carpenter.—There is no special work on the subject; we think it could be easily constructed.

S. Hartley.—Shagreen is a leather prepared from the skin of the horse, ass, or camel; the only part fit for the purpose is taken from the lower part of the back, from the tail to the middle of the back-bone. The peculiar asperities of this leather are given to it by pressing in the hard seeds of the *Chenopodium album*, which, when the leather is afterwards dried, are beaten out.

Jason.—The best varnish for your purpose is caoutchouc dissolved in benzine.

W. H.—There are several other calculating machines beside that invented by Mr. Babbage.

O. P. Q.—Barometer scales are silvered by rubbing the cleaned metal with the following paste:—Chloride of silver, well washed, 3 parts; cream of tartar, 1 part; corrosive sublimate, 1 part; sea salt, 72 parts; sulphate of zinc, 72 parts; and a little water.

C. Y. W.—By the addition of 10 per cent. of treacle to the glue, and 2 per cent. of tannic acid dissolved in alcohol added to the warm solution of gelatine, the desired elasticity and toughness for moulds may be obtained.

G. Ascoton.—To give the information you require would require a treatise for which we have no room. If you have access to a library, consult an encyclopædia.

A Journeyman Dyer.—Make a solution of alum about ¼ lb. to the gallon of water. Soak the articles in it for six hours, and hang up smoothly on lines to drain and dry. Then sponge all over carefully with clean water, and colander if desired. A little of a solution of washing soda added to the alum solution is an improvement, but renders the after operations more troublesome.

R. S.—Blue ink is usually prepared by dissolving Prussian blue in oxalic acid. The best mode of proceeding is as follows:—Dissolve 10 parts (ounces or pounds) of sulphate of protoxide of iron in a large quantity of water; boil it, and add sufficient nitric acid to sesquioxidise all the iron, which may be recognised by the liquid no longer turning blue upon adding it to a solution of yellow prussiate of potassa, containing 10 parts of the salt, and allowing the deposit to settle. After decanting the supernatant liquid, throw the deposit on a filter, wash it with cold water, and leave it to drain until it can be easily removed from the filter with a knife. Then, without drying it more, mix it in a Wedgwood's mortar with 2 parts of oxalic acid in crystals, and allow the reaction to operate for an hour; then add, little at a time, 400 parts of water. We thus obtain a deep blue solution, in which, even after a long repose, no deposit appears. It is as well to note that this blue ink must not be brought into contact with ordinary black ink, nor must a pen soiled with black ink be dipped into it.

P. Hastie.—For a plastic composition for joints of tubes, cocks, &c., take fresh clay that can be worked by the hand, roll it out and cut into strips as thin as possible, and lay it out to dry until all the water is completely evaporated. Then put some pulverised marble into a glazed vessel, and cover it with hydrochloric acid. In about twelve hours the marble will be all dissolved. The vessel must be kept in the open air, so that the acid vapours may not cause any damage. The marble being completely dissolved, put into the solution a portion or the whole of the dried clay, then knead the whole together into a soft paste, after which leave it in the solution for about three days; knead it up again, and it is then ready for use. This composition always remains soft and plastic.

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PROSPECTUS.

Seeing the great evil of having our meetings at public houses, and the necessity of improving our condition, both morally and socially—conscious of the difficulties and failures that have attended all former efforts in this direction—we have taken a broader basis as the foundation of our work, and a fixed determination that no effort shall be wanting on our part to ensure its success.

To remove the existing evils of public house meetings, the London Central Painters' Society members have formed a Company, on the principle of limited liability, for the purpose of leasing or building a hall in a central part of London, such building to consist of a hall capable of holding 1,000 persons seated, library, and reading room, with large rooms for the use of various societies to hold their meetings in, with committee and refreshment rooms attached, lavatories, &c.

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The promoters of the Company are, on allotment, to receive the money outlaid for the promotion of the Company, and no further remuneration until 10 per cent. has been divided amongst the shareholders; any profit over and above this rate to be divided amongst the shareholders and promoters, in proportion of two-thirds to the shareholders and one-third to the promoters.

For the many benefits it will confer upon them, it behoves the working classes generally to devote their entire energy to its advancement, and take every opportunity of making it known and appreciated; as we advance in years, numbers, and intelligence, great and numerous will be the advantages which those who come after us may acquire through our earlier exertions.

The promoters, in bringing this scheme before the working classes, feel the greatest confidence that, if supported by those it is intended to benefit, it will prove one of the greatest advancements of the age, both morally, socially, and financially, and will ultimately produce a large dividend to the shareholders.

FORM OF APPLICATION FOR SHARES.

To be retained by the Bankers of the Company.

No.

To the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED.

GENTLEMEN,—I have paid to your credit at your Bankers the sum of £ , being a deposit of 2s. 6d. per share on shares in the above Company in respect of such shares, or in respect of any less number you may allot me, and I agree to pay the further sum of 2s. 6d. on allotment thereof, and the instalments according to the terms of the Prospectus.

Name in full,

Residence,

Profession or Trade,

Dated this day of 186

If it is not convenient to make the deposit with the Bankers of the Company, the form may be sent by post to the Office of the Company, accompanied by a Crossed Cheque or Post Office Order for amount of the deposit, which will be paid into the Company's Bankers, and the Receipt returned by post to the Applicant.

BANKERS' RECEIPT.

To be signed by the Bankers and returned to the Applicant.

Received this day of 186 , of for the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED, the Sum of on account of an application for an allotment of Shares in the undertaking.

£ : : [1

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VOL. I.—No. 12.] SATURDAY, MARCH 24, 1866. {PRICE 2D. STAMPED, 3D.

THE PAVIOR'S RAMMER.

THE BOX LIFT.

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

THE last example that I shall give of labour wastefully employed, is that of "navvies" wheeling materials in barrows up a slope, "tipping" the barrows, and returning with the "empties" for a fresh load. This, I am informed, is a kind of work which is considered to have been brought to great perfection on English railway works, and yet, on investigation, I think it will be found to be one of the clumsiest methods ever invented for employing the labouring force of man, as the work wasted in useless labour bears so large a proportion to the work expended on the actual transport and elevation of materials.

A man thus employed in "tipping" barrows, runs up a slope of 1 ft. in 12 ft., empties, or "tips" his barrow, and returns with it empty for a fresh load.

According to the best authorities, the work done is 519 ft.-lbs. per minute, or 139 ft.-tons per day of 10 hours' labour. The "navvy" so employed is placed under the same unfavourable conditions as the "hodman," for he is obliged to lift and bring down, not only his barrow but his own weight, at every journey that he makes.

The weight of his barrow (iron wheel) is 84 lbs.		
The weight of his body and clothes .	160 ,,	
		244 lbs.
The weight of his load is		336 lbs.

* Continued from page 150.

The weight of load is thus found. From Mr. Lane's valuable observations on the Birmingham and Oxford Junction Railway, it appears that each cubic yard of earth weighed $1\frac{1}{2}$ tons, and as the barrow carries one-tenth of a cubic yard, we have, by the chain rule, the following:—

	1 Barrow load.
10	1 Cubic yard.
10	15 Tons.
1	2240 lbs. avoir.
	336 lbs.

Assuming the work spent in descending as half that spent in ascending, we find—

Work wasted (in each journey) . . .	366
Work done	336
Total	702

As the total work done in the day is 139 ft.-tons, it is easy to see that the work wasted in the day is—

$$139 \times \frac{366}{336} = 151 \text{ ft.-tons.}$$

Adding to this the useful work, we find—

Work wasted	151 ft.-tons.
Useful work (paid for) . . .	139 ,,
	290 ft.-tons.

The following example, taken from actual observation, serves to show how estimates of labouring force should be made under different circumstances.

On watching the paviors of Dublin at work, I found that they made 78 blows of the rammer in 2 min. 45 sec., and then rested for 3 min. 30 sec. Their rammers weigh 5 st. 9 lbs, and are lifted at each stroke to the height of 16 inches. I also learned, on inquiry, that 10 hours was the ordinary period of their daily labour. Let us calculate, from the foregoing data, the work done by these men in the day of ten hours.

The time of labour is to the time of rest as 2 min. 45 sec. is to 3 min. 30 sec., or as 165 to 210. Hence the time of labour is to the whole time of labour and rest as 165 to 375.

Therefore, in the day of 10 hours, the number of minutes of labour is—

$$10 \times 60 \times \frac{165}{375} = 264 \text{ minutes.}$$

But in $2\frac{3}{4}$ minutes 5 st. 9 lbs. (or 79 lbs.) are lifted 78 times, through 16 inches (or $1\frac{1}{3}$ ft.).

Hence the work done in $2\frac{3}{4}$ minutes is—

$$79 \times 1\tfrac{1}{3} \times 78 = 8216 \text{ lbs.}$$

and the work done in the whole day is—

$$8216 \times \frac{264}{2\frac{3}{4}} = 788{,}736 \text{ lbs. lifted through one foot.}$$

Dividing this result by 2240, the number of pounds in one ton, we find—

Daily work of pavior = 352 ft.-tons.

The operation of piledriving, consisting as it does in the lifting of a weight which is afterwards allowed to fall, presents many analogies to paviors' work; but it is found, on trial, to be a more wasteful mode of employing the labouring force of men, probably on account of the greater rapidity with which the work is required to be done. I take

the following examples from Coulomb and Lamandé:—

Coulomb observed that in the ordinary operation of piledriving, each man lifts 19 kilogrammes of the ram; at every pull the ram is raised 1·1 mètre; the men make 20 pulls in 1 minute, and after 3 minutes of exertion, rest for as long a time, and then begin again: thus, their daily labour lasting 6 hours, the duration of fatiguing exertion does not exceed 3 hours. The weight lifted through 1 mètre, or work done, in this case is—

$$\text{Work done} = 19 \times 1{\cdot}1 \times 20 \times \frac{6 \times 60}{2} = 75240 \text{ kilog.-mètres.}$$

The rule for converting kilog.-mètres into foot-tons is to divide by 311. Hence—

$$\text{Work done} = \frac{75240}{311} = 242 \text{ ft.-tons.}$$

Lamandé, the celebrated architect of the bridge of Jena, found that 38 labourers, working 10 hours a day, made in each hour 12 efforts, each of 30 pulls; the ram weighed 587 kilogrammes, and was raised through 1·45 mètres at each stroke. The work done in this case is—

$$\frac{587 \times 1{\cdot}45}{38} \times 10 \times 12 \times 30 = 80635 \text{ kilog.-mètres.}$$

Dividing this result, as before, by 311, in order to convert it into foot-tons, we find—

$$\text{Work done} = \frac{80635}{311} = 260 \text{ ft.-tons.}$$

It is worthy of remark, that the number of pulls given each day in Coulomb's and Lamandé's observations is the same, viz., 3,600, although the hours of labour are in the proportion of six to ten.

The circumstances under which different kinds of labour are performed influence materially the total day's work, as I have already shown in several instances. As a further instance of this important principle, I shall compare the results of the "box lift" and the "swing lift," as used on the Oxford and Birmingham Junction Railway.

The swing lift consists of a balk fixed vertically in the ground, in such a position that the ends of a long lever, by which it is surmounted, can be alternately swung round to the same stage. "The lever," in the case considered, "was constructed of a strong timber, trussed by means of an iron rod, strained over a short king-post of hard wood. The lever was balanced on its centre by an iron sling, and was free to move in an horizontal plane by means of a strong iron pivot working in a cup on the top of the vertical balk. Each end of the lever had an iron hook, to which the barrows containing the materials and the counterpoise, and ropes, by means of which the men below guided the loads to their proper destination, were attached. The men, called *riders*, descended by their gravity in the empty barrow, thereby lifting the weight at the other extremity of the lever, and ascended again by ladders without carrying up any material." *

With the aid of the swing lift thus employed, it was found, as the result of more than one year's observation, that

The work done was 1046 ft.-lbs. per minute;
Or . . . 280 ft.-tons per day of 10 hours.

Much time was necessarily lost, in the arrangement just described, in swinging the lever from side to side; and the work obtained from each man's labour was not so great as it should have been, nor so great as was readily obtained by the "box lift," which proved to be a much more economical contrivance.

The box lift consisted of four upright beams, connected at the top by cross braces; a wheel was carried by these braces, and round it was passed a rope, at each end of which a box was attached. The material was raised in each of the boxes alternately by the weight of men descending in the other.

The illustration will serve to give an idea of the principle of the box-lift.

The work done per man per day, by means of this contrivance, was found to be—

Work done . 1510 ft.-lb. per minute.
Or . . . . 404 ft.-tons per day of 10 hours.

From the preceding facts, we can form an estimate of the amount of work done by labouring men engaged in different occupations, and of the work wasted in each kind of labour unprofitably. I have stated in each case the average result of the day's work, but it is to be remembered that men are capable, on a "spurt," of doubling, or even trebling, the foregoing results for a day or so, as may be proved by the following examples:—

1. A friend of mine, weighing in his clothes, 14 stone, ascended Monte Rosa (9,000 ft. in 9 hours), and descended again the same day.

The work done in this case was, in ascending—

$$\frac{14 \times 14 \times 9000}{2240} = 787 \text{ ft.-tons.}$$

Allowing half as much work to be done in descending, we find—

Total day's work = 1181 ft.-tons.

2. Captain Coignet invented (1835) a box lift, to be used in forming earthworks by a single soldier; and showed that one man, using his lift, could raise his own weight (70 kilos.) through a height of 13 mètres, 310 times each day. From these data we find—

$$\text{Work done in one day} = \frac{70 \times 13 \times 310}{311} = 910 \text{ ft.-tons.}$$

3. Prisoners, also, working under compulsion, can be made to use the tread-wheel for 8 hours a day, and thus produce 834 ft.-lb. of work.

Examples like the foregoing are, however, rather to be regarded as feats, showing what a man can do for a short time, but it is certain that a few such days of labour would inevitably break down the strongest constitution, and render the labourer incapable of any work at all for a long period.

If we collect together into one table all the preceding results, we shall obtain a good view of the work done per day by different classes of labourers, and of their comparative economy.

Table showing the Work Paid for *in different modes of employing Human Labour.*

Kind of Labour.	Hours of Labour.	Work Paid for.
1. English Treadwheel .	4 hours.	417 ft.-tons.
2. Norwegian Treadwheel	4 ,,	390 ,,
3. Hodman	6 ,,	131 ,,
4. Shovellers	10 ,,	125 ,,
5. Tipping a Wheelbarrow	10 ,,	139 ,,
6. Paviors	10 ,,	352 ,,
7. Piledriving (a) . . .	6 ,,	242 ,,
8. Piledriving (b) . . .	10 ,,	260 ,,
9. Box Lift	10 ,,	404 ,,
10. Swing Lift	10 ,,	280 ,,

The prices paid for different kinds of labour in the same district, ought to be proportional to the above results.

Dr. Watts's "Facts of the Cotton Famine."

Dr. John Watts, of Manchester, has published a valuable book, which he entitles the "Facts of the Cotton Famine." We purpose to speak of this book, but we have a presentiment that we shall scarcely now reach to the merits or pith—we were going to say "marrow"—of the book, but dislike that boiled-bone simile. The preface will, we foresee, delay us on our way.

In it the author tells us that he is dissatisfied with his work, and that if it had to be re-written he could materially improve it. What is the good of telling the reader this, unless to disincline him to read the book? The reader cannot judge the truth of what is said, and therefore the information is useless. The reader has not gone over the same ground; he has not had the same material before him; he has no idea how it could be better presented; and if he supposes a better treatment possible, he can only wish that the author had acted on his better knowledge before publishing his book. A sculptor or painter may very properly and modestly own to the select circle of art critics that he is sensible of deficiencies, and has not done his best. An author may say this to reviewers, who, by the way, will never forgive him the confession, but to the general public it can have no meaning. Indeed, it violates the very theory of prefaces to interpolate so irrelevant an intimation in it.

We take it for granted that everything appearing in a book should appear there with a definite purpose; and if it has no purpose in it, it has no business there. If, therefore, we find a preface to a book, we take it for granted that there is a meaning in it, and that the author wrote it because he had something special to say in it. In these days, when books are multiplied, the public should be more than ever guarded against mere words, and none should be employed except they make a definite addition to human knowledge. There are authors who commence a preface by telling the reader that it is never read. If the author believed himself, he would say no more and omit his preface. No doubt there are readers who habitually skip prefaces; there must, therefore, have grown up a want of confidence in them. There are, indeed, authors who tell us that their prefaces were written after the book was composed. This only proves that many authors do not know what they are going to write about, and their prefaces, instead of being explanations of their design, become apologies for their non-fulfilment. Readers who discover this have no relish for the insipid confession: they skip over the introduction without zest, and dip into the chapters without hope. Perhaps the most perfect preface will always be one written after the work is finished. Most authors of capacity find their subject grow upon them. They discover new applications of the principle discussed. What they thought to be very limited proves to be very wide. What they thought to be easy turns out very difficult. The proofs they thought sufficient prove inadequate, establishing too little, or, what is equally unsatisfactory, demonstrating too much. The author finds himself wiser when he has thoroughly worked out his subject. Under these circumstances, he can give a better introduction to the reader when he has finished his book than he possibly could before he began it. Dean Graves tells us, in his Eloge on the late Sir William Hamilton, that Professor MacCullagh would ponder an incredible time over a mathematical demonstration, until all its parts assumed a symmetry in his mind, before he would commence a delineation of it. The late Sir William Hamilton himself had this patient faculty of thoroughly mastering his subject before committing himself to its elucidation. Such authors, and such alone, are competent to write their prefaces before writing their books. But whether the preface is written before or after is of small consequence, providing it answers its purpose when executed.

We have pleasure in saying that Dr. Watts's book is much better than his preface would lead any one to suppose. He was a member of the Lancashire Central Relief Committee, and therefore fully conversant with his subject. It occurred to him that the great social, political, and commercial facts attending the unprecedented convulsion of our gigantic cotton trade needed some permanent record, and he went about suggesting to gentlemen whom he thought competent to make it that one or other should undertake the work. The author confesses that he was "surprised" to find himself, in each case, requested to make the record wanted. But the public familiar with Dr. Watts's name will not be surprised that competent judges of the history needed should agree in selecting him to write it. Dr. John Watts might properly appear in our series of sketches of "Men who have risen from the Ranks," and therefore he was well qualified to record, as he was personally well fitted to deal with, the facts, incidents, and persons of the cotton famine. He has produced a book of great interest. Unfortunately, the title is as dry as science could make it, and gives to the general public and ordinary reader very little idea of the animated and reliable history the author has produced. His book is a permanent exposition of the social life and political character of Lancashire, and of the public action of the English nation during four memorable years. It relates to the conduct of working men under circumstances of trial in which they were never placed before, and out of which they came with an amount of credit the working class never won previously. Lord Palmerston was so struck by it that he would have given them all the franchise, had it been possible to introduce a bill for their especial benefit. We trust the title of the book will not prevent it getting into every library to which working men have access. It is a romance of Industry, and all true. Its facts are as good as fictions, and much more useful. The author has devoted to it the leisure of twelve months. We are glad he has not attempted to re-write it.

* "Proceedings of Institution of Civil Engineers."—Vol. xi., p. 79.

There is a freshness of thought in it, a picturesqueness of description, a certain impulse in the book, which is almost sure to have disappeared had the author operated upon it with a view to that technical strictness at which he has aimed in former works. He has never written a book before half so large nor half so well. We learn from the preface, and from the preface only (for the book has no formal dedication, as it ought to have), that it is inscribed to all those who contributed to the funds of Lancashire Relief Committees, and to all who assisted in the distribution of those funds. Should all the persons here alluded to buy the Doctor's volume, it will have a large and well-deserved sale. If the book should become known to them all, as it ought to be, we have no doubt this will be the case. If it should not, the author may be a loser after twelve months of the most laborious and yet most useful work any public writer could undertake on behalf of social progress. In a future article we shall endeavour to do some justice to the contents of the volume.

The Materials of Co-operation.

The "beginning of a store," as we have already explained, is of course a question of capital, and we have explained how that capital has usually to be raised. Though no store can flourish without capital, it does not follow that it will flourish with it—that depends upon the persons who employ it. We will therefore describe the kind of persons most likely to carry on a store successfully. The materials of a Co-operative Store consist of men as well as money, and the quality of the men is of no mean importance. The early members who originate and establish a store determine its character for the future. For instance, if they insert a clause in their first rules to the effect that a portion of the profits shall be devoted to educational purposes, no future members ever think of abrogating such a rule. Most come to experience the benefits of it; all have seen the good effects of it. The credit of the store has been raised by it; and we have never heard of a case in which the members of a Co-operative Society have ever gone back and repealed so wise and honourable a rule. Neither, on the other hand, have we ever heard of a case in which a society, founded without such a rule, ever instituted it. People who have never tasted the value of knowledge care very little for it, and will rarely, if ever, consent to pay for it. On the other hand, men who have acquired knowledge know that it is power as well as pleasure, and will never part with it. There never was an intelligent man who would, if he could, go back into the helpless, despicable state of ignorance. Once, however, let a store be founded on the basis of paying all the profits over to the members, the ignorant and the selfish will always force the continuance of the same state of things. They will look upon money taken for educational purposes as a robbery of their profits, and will say, "Let those members who want knowledge go to mechanics' institutions, and beg or borrow their knowledge of any who are generous enough to give it or lend it, but let them not diminish our profits by a farthing in the pound for that purpose." If we mistake not, this is the history of the great Halifax Industrial Society. It rivals the Rochdale Equitable Pioneers in the number of its members; it makes enormous annual sales; it reaps colossal profits; but it has no educational fund. The Rochdale Pioneers have. After paying quarterly—(1) expenses of management; (2) interest due on all loans; (3) an amount, equivalent to ten per cent. of the value of the fixed stock, set apart to cover its annual reduction in worth, owing to wear and tear; (4) dividends on subscribed capital of the members; (5) such sum as may be required for extension of business; (6)—last but one, but not least—two and a-half per cent. of the remaining profit, after all the above items are provided for, to be applied to educational purposes; (7) the residue, and that only, is then divided at Rochdale among all the members of the store in proportion to the amount of their respective purchases during the quarter, varying from 2s. 2d. to 2s. 6d. in the pound. This proportion in other societies is 8d. in the pound, or 1s., or 1s. 6d., or 2s., or 2s. 4d., in some cases 2s. 6d. and 2s. 8d., according to the economy, and wisdom, and magnitude of the transactions of the store. No case has been reported in which the profits have reached 3s.

It is, therefore, of importance that the beginners of a store should be men who understand Co-operation. In the four years, from 1861 to 1865, the Rochdale Pioneers appropriated the large sum of £1,841 3s. 10d., or nearly £2,000, to educational purposes. Had they not began to do this at the first—that is, to make appropriations of this kind in the infancy of the store—they could not do it now. The man who learned to carry a cow began first by carrying the calf, and carrying it every day his strength grew by the exercise, and at last he carried the cow as easily as he once did the calf. In the same way the society that intends or hopes to carry the educational cow must begin with the calf. The illustration does not spoil the fact; for whether it be a cow, or a library, or a news-room, both are good for consumption: the cow for the body, the books for the mind.

The first intelligent and earnest members of the Co-operative Society should, therefore, look out for persons similarly minded to join them. Men of the working class are best, because there is work to be done, and they are the most likely to do it. Men of the working class are best, because there is profit to be made, and they need it most. Men who have some ambition, who wish to improve their position, are necessary, because they are likely to stick to the society which affords them the means of doing this. Men with some intelligence should be sought, because fools will not make Co-operators. Men of some patience are useful, for success cannot be compassed all at once. Men of some perseverance are required, who will push on over difficulties, or through them (it does not matter which), until success is won. Men who care for the good of others are invaluable, for Co-operation is a scheme for promoting the welfare and profit of all the members; and he who cares most for the welfare of others will hold on the longest, work with the best heart, display the most forbearance with the shortcomings of others, and be of good cheer in the dark days, when profits are low. But men of good nature and good will are the rarest to find. We want leading men who, like the late Mr. Cobden, have meekness without weakness, who never put themselves forward, and who never hold back; who are, nevertheless, always found in the front whenever there is a vacancy there: and there always is a vacancy when the society is confronted by danger or difficulty. Men are wanted who never give offence, and never take it; whose tempers move on a sort of universal joint, and pass out of the way when the angular and cantankerous come in contact with them. In every society there are members whose tempers are rusty, who never move without a creak, whose ordinary talk partakes of the nature of a railway-whistle, whose laughter seems compounded of a groan and a scream, and whose smile, if they relax into one, is only a modified sort of reproof. In competition this kind of thing is never counted as of moment. There naggling is natural; but in Co-operation, where everything is voluntary, a rheumatic temper tells upon the profits, and imparts a chronic tic-doloureux to the whole concern. To use another simile—an officer with a porcupine tongue will prick all the members of a society in three months, and establish a universal smarting in the place. Passing to the botanical kingdom, every one knows that it would be a painful thing to live if all food grew on nettle-bushes; people would give up smelling the rose if thorns always penetrated the face before the fragrance could be inhaled. The qualities of the materials of Co-operation are, therefore, important, and a smaller society of the right men will go farther, last longer, and achieve more, than a larger one of half-informed, disqualified persons.

The Savings Banks Investment Act.—The new Act for amending the law relating to investments on account of savings banks and Post Office savings banks has been issued. The Treasury is now empowered to substitute terminable annuities for capital stock standing to the savings banks' account, and the commissioners may make rules as to payments to the National Debt Commissioners. The Treasury is likewise empowered to cancel capital stock of annuities, and to substitute terminable annuities. The warrants issued by the Treasury to the Bank of England are to be a sufficient authority for the cancelling of the stock. The statute, which has recently received the Royal assent, is to be called "The Savings Bank Investment Act, 1866."

Some Working Men I have Known.

The stock biographies of men who, born to the heritage of hard daily toil, have by their innate force of character raised themselves into notice, and claimed a niche in the gallery of the great ones, by no means chronicle all who have wrestled with the obstacles which impeded their development, and been victors in the conquest. It is not given to all to be masters of song, like Burns; of art, like Palissy or Gibson; of engineering skill, like Stephenson; of critical acumen, like Gifford; or of abstract science, like Ferguson or the elder Herschel: yet these, at first, were all poor or working men, who gained their education by their own efforts—who did battle with pinching poverty, lack of educational means, prejudice of class, and all those lions which stand in the way of men of weaker mould, who "let I dare not wait upon I would."

All, I say, cannot be field-marshals in the army of life; but somewhat lower, yet very honourable grades, have been attained by men once in the ranks, who, while never for a moment despising the labour by which they gained honest bread, were not disposed to consider that working, eating, and sleeping are all that is worth living for. Their daily labour honestly and intelligently performed, they felt themselves to be free citizens of the empire of thought, in which true men take rank according to what they essentially are, quite independently of the conditions of their life.

When the sun shines, it shines for all, lord or labourer; and the precious instincts which make men believe in good and beautiful things, treasure up and nourish the suggestions of universal nature, and cultivate the talents entrusted to their care, are bestowed as impartially as the sunshine. Look into any biographical dictionary, and you will see how little the circumstances of early life have been able to impede the careers of really great men. Real mental energy soon masters them, and makes them even subservient to its will.

I, a working man, with few opportunities of going out into the great world, have not met many famous men; but I have known some who deserve to be famous, or, at least, whose efforts and achievements merit acknowledgment at the hands of their fellow working men.

I have on my little book-shelf at home some of the best authors of the "Augustan age" of English literature, as the early part of the last century was styled. Addison and Pope are especial favourites. I bought the books for a few shillings—not more than I have often known squandered in a single evening by a shopmate, who "liked to enjoy himself"—and many, many evenings of true pleasure have I derived from my crown's worth of literature. But I refer to them now because these authors frequently criticised living persons, veiling their names under such disguises as "Eugenie," "Chloe," "Atticus," &c. To that extent I will imitate them; for some of the originals of my sketches of "Some Working Men I have Known" are still working hard in our very midst, and, modest and unassuming by nature, would be pained at being brought more prominently before the public. Others have passed away, just when their dearest hopes of achievement were on the point of realisation; but they have left behind those who might not wish the sad stories of their lives to be made known in all their details.

Carolus (I will call him) was my fellow-apprentice, younger than I, who accepted my few years of seniority as a reason why he might make me a confidant of his cherished plans. He was a rough, uncouth lad, violent in temper, reckless in his fun, who, in childhood, had been the occupant of the van of the manager of an itinerant dramatic company, and whose first efforts at composition were tremendous melodramas, with no end of assassinations, combats, and deepest dungeons; and who, at the age of thirteen, when I first knew him, had no higher ambition than to see his imaginary heroes tread the stage. Night after night the young boy would sit up almost till morning beamed, to construct sensation scenes and invent sounding dialogue. I was the critic (often, I fear, a very jocular and irreverend one) of the performances. In vain I laughed at and parodied them. He wrote on with undiminished enthusiasm, always, I noticed, beginning with a fully-drawn-out title-page, with his name, as author, in full capitals. In course of time, however, a

change came over him. I was myself a rhymester, and some verses I had written were not only published, but rather extensively quoted. Carolus determined to beat me on my own ground. He threw away his manuscript drama, laughed at the nonsense he had written, or at odd moments mounted a property wig and flourished a property dagger, to burlesque his old literary love.

At the printing-office in which we were employed, a new publication was put in hand. In the first number appeared a little poem, so charmingly written, so musical, and so full of natural feeling, that it was at once quoted by journals of high repute, and went "the round of the press." It was borrowed by American newspapers, and, for aught I know, may be still travelling from "Poet's Corner" to "Poet's Corner." Those verses were the production of Carolus, the clumsy, boisterous, shock-headed boy, whom no one suspected of poetry. He quickly followed up his success. Popular publications were freely opened to his contributions, and scarcely a week passed without the manuscript of a new poem being submitted to my inspection. Then came the crisis of a life. The passion which made Byron a poet, which shook the mental frame of Keats, awoke a volcanic fire in the heart of my poor young friend. It was a love like Petrarch's, a love which he was bound in manly virtue to wrestle with and subdue. He did wrestle strongly, but in the fatal contest broke his passionate heart. At two-and-twenty, he was a dying man; the symptoms of consumption appeared, and he felt that his career was ending. Still he wrote; the struggle he had endured imparted a sad majestic cadence to his verse; and the tender care of those who loved and watched him was commemorated in lines which for pathetic, affectionate earnestness I have seldom seen excelled. A strange, imaginative poem, infused with a sense of the coming change, was the last he wrote. He sent it to the foremost of our magazines, the famous *Blackwood*, and there it appeared a few days only before his death. I sat by the bed-side watching the wasted form, the pallid face of the dying poet. He could scarcely speak, but his dim eye sparkled as, with hesitating words, he told me how he had received a very complimentary letter from the editor of the magazine. His literary ambition was satisfied, and, calmly and bravely, he turned round to die. A few days afterwards all was over, and the restless, fervid genius, which promised so greatly, was at rest.

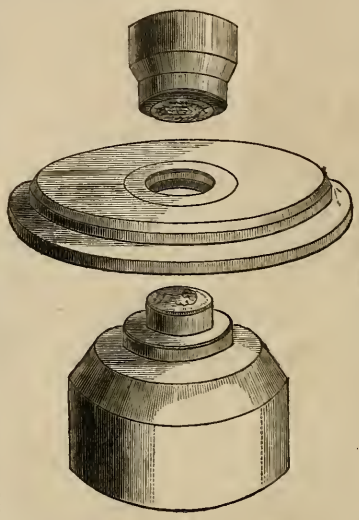
This is no imaginary sketch, but a study from real life—a life, too, passed in poverty, hard work, and great discouragement.

(To be continued.)

Coin from the Crucible to the Press. *

With so much of explanation of the secret machinery of the coining-press room, we may now proceed with more confidence to the action of the press itself. It must be observed that the attendant youth has been supplied with some of our old friends, the sovereign blanks, and that he has taken up a position in a recess formed in the platform, immediately in front of a press. He is, in fact, engaged in piling up a number of blanks, preparatory to placing them in the receiving-tube, immediately above his left hand. The dies, of course, have been carefully set by a skilled mechanic, and all is ready for action. The vertical rod, which extends upward to a quadrant of brass below the fly-arms, is part of the feeding apparatus, and, when in motion, it forces a pair of sliding forceps backward and forward beneath the receiving tube.

Two lines are close to the right hand of the press attendant, and these pass through pipes under the platform to the vacuum-pump. These are the starting and stopping lines. Let it be supposed, now, that the press is completely prepared, and that we are looking on. The first movement of the young coiner will be to pull tightly a cord, and attach it, by means of a loop, to a stud in the "press-hole;" his next to give a sudden jerk to the other cord. The result is, the sharp descent of the press-screw, with its accompanying die, upon the face of a golden disc, which has been laid by the feeder on the lower die. At the instant that this blow was given upon the softened metal, a steel collar, which has its inner edge milled, had risen and enclosed the disc, thus forming a mould for its edge. It will now be understood that as a reverse sovereign die was placed face downwards in the upper die-holder, and that an obverse die rested face upwards in the lower one, and the blank was between the two, a sovereign has been produced by the downward traverse of the press, and such is the fact. The edge, also, has been milled, and the whole operation has not occupied more than a second of time! It is impossible to show by the pencil the exact position in which the dies and blank were when the fly-arms performed a partial revolution and the blow was administered, but the accompanying illustration of a



PAIR OF SOVEREIGN DIES AND MILLED COLLAR,

will give a clearer conception of the operations. It must be remarked that the collar fits easily round the neck of the obverse die, and is readily moved by small levers and springs up or down. After the first piece of money has been struck, the collar is pressed downward, and the flattened forceps are already advancing with a second blank. In approaching the die, the point of the forceps pushes forward the coin into a pan placed on the other side the press to catch it. The forceps open self-actingly, and deposit, with wondrous precision, a second blank on the obverse die. The instant it is so deposited, the reverse die descends upon it, giving it the imprinting squeeze, the collar rising as before, to prevent its too great lateral expansion, to mill it, and to preserve its perfect circularity. It is pushed into the catch-pan as described. Others follow in the same course, the attendant taking care that the feeding-tube is constantly kept supplied with new candidates for sovereign honours. Thus the press is allowed to go on in noisy harmony so long as it yields good work; and its productions are keenly examined at intervals by inspectors, in order to ensure that desideratum, or until the supply of blanks is exhausted. A Mint coining-press will strike 25,000 pieces of money per day, whether they be of gold, silver, or bronze; and as there are eight presses, their aggregate yield is 200,000 coins per day.

It may be well to state that the cords referred to above, and which are so magical in their effects, are attached to the two valves of the vacuum-pumps. When the first is looped up, it allows the outer valve to close by the pressure of a spring. The tug at the second cord opens the inner valve, and this effects a communication between the pump and the vacuum-pipe below it. The consequence is obvious: the atmospheric column exerts its natural force upon the piston, and the latter falls under its weight, carrying with it the rods and the press. In its descent, however, it is accompanied by a "tappet," which closes the inside valve, and then the press rebounds upward, dragging with it in its turn the piston. The inside valve springs open when the piston has reached the extent of its stroke—some fifteen inches—the air impinges once more upon it, and so the alternations go on until the looped cord is released and the outward valve prevented closing. This brings the press to a dead standstill, as no vacuum can then be formed within the pump, and the air presses with equal force on both sides of the piston, keeping it quiescent.

Literally, therefore, the atmosphere coins all our money, and the beautiful impressions on our sovereigns owe their existence to the air we breathe. The gold coins resulting from each day's workings are gathered carefully together, and weighed in quantities of 15 lb. each. Silver coins are weighed in 60 lb. drafts, and bronze in 56 lb. They are all transferred to another room for the closer inspection of each individual coin, and in the case of gold and silver moneys, for the weighing, by automatic machines, of each separate piece. The automatic weighing balances of the Mint are delicate and beautiful pieces of mechanism, invented originally by Mr. Cotton, of the Bank of England, and subsequently much improved upon by Mr. James Napier, the celebrated engineer, of Lambeth.

On their tiny steel pans, each gold coin from the press is made to rest for the space of three seconds, and then it is decided whether it shall pass out into circulation or be returned to the crucible. The extreme limit of variation allowed between sovereign and sovereign is one quarter of a grain on either side the standard weight, which is 256 thousandths of an ounce.

As a rule, 95 per cent. of the gold coin struck at the Mint presses pass through the ordeal of the automatic balances, and are then sent forward to the Bank, in return for the ingots supplied. Eventually, the full 100 per cent. reaches the same establishment, the expense of the re-meltings and re-workings of the metal falling upon the public Treasury. The subjoined Table, giving the weight in decimals of the unit (one ounce) of every coin in the British series, will appropriately complete our brief history of "Coin from the Crucible to the Press:"—

Weight of the Coins of Great Britain.

Denomination of Coin.	Standard Weight.		Legal rem., or variation.		Legal Maximum Weight.		Legal Minimum* Weight.		Diameter of Coins.		Thickness of Blanks.	
	Grs.	Parts.	Grs.	Parts.	Grs.	Parts.	Grs.	Parts.	Ins.	Parts.	Ins.	Parts.
Sovereign . .	123·274	0·256	123·331		123·017		0·875	0·0476				
Half-Sovereign .	61·637	0·128	61·675		61·508		0·755	0·0312				
Florin . . .	174·545	0·727	175·272		173·818		1·166	0·0625				
Shilling . . .	87·272	0·363	87·636		86·909		0·916	0·0500				
Sixpence . . .	43·636	0·181	43·818		43·454		0·755	0·0370				
Threepence . .	21·818	0·090	21·909		21·727		0·666	0·0270				
Pence	145·833	2·916	148·749		142·916		1·200	0·0555				
Halfpence . .	87·500	1·750	89·250		85·750		1·000	0·0512				
Farthings . .	43·750	0·875	44·625		42·675		·800	0·0384				

Improved Respiratory Apparatus.

Many valuable lives are lost yearly from suffocation, through workmen rashly or incautiously venturing into places filled with mephitic vapours. Old wells, vaults, cesspools, rooms filled with smoke, and other places filled with gases unsuited for respiration, must, under certain circumstances, be entered by human beings, and various contrivances have been brought forward to facilitate access and assure safety, but they have generally been too complicated, and consequently impracticable in use.

The problem has at length been satisfactorily solved by an ingenious mechanician, Mr. Galibert. The apparatus he has invented has been submitted to severe and conclusive experiments, and deserves being made widely known, as one of the discoveries most useful to mankind.

Mr. Galibert's system is entirely free from mechanism. He employs neither reservoir of compressed air, force pump, nor regulator. It has not even a simple valve. This is a very important feature in apparatus worked only in exceptional cases, and liable to be found out of order, like the parish fire-engine, at the time it is required for use.

The new apparatus assumes two forms. The first consists of a reservoir of air of the capacity

* Concluded from page 171.

* Practically, the "minimum legal weight" applies only to gold coins, and this, when reached, condemns them, as "*light*," to the crucible. Silver and bronze coins are mere tokens of value, and *they* circulate so long as a Mint mark remains upon their surfaces—sometimes even after their devices have totally disappeared.

of about ten gallons, which is sufficient to enable a person to remain from twenty to twenty-five minutes in the most suffocating gas, even in sulphurous acid. This reservoir, which is inflated by a special bellows, receives the open ends of two pipes. The two other extremities of the pipes are fastened

into a piece of horn, which is held in the mouth of the operator by a slight pressure of the teeth. The reservoir being inflated in half a minute, the operator attaches it to his back, by shoulder-straps, like a soldier's knapsack. He then covers his eyes with spectacles, and applies a small instrument (a nip nose) to his nostrils: these are the accessories to the apparatus. The operator breathes through the two pipes simultaneously, and returns into the reservoir the air expelled through the same pipes, taking care to breathe as slowly as possible. The entire weight of the apparatus, including the accessories, does not exceed 3½ lbs. By adding the weight of the bellows employed in inflating the apparatus, and the tin box in which the whole is packed, the gross weight amounts to eight pounds.

With this apparatus the workman is quite free in his movements, and can go readily wherever

his presence may be necessary. Before he has exhausted his store of air, he may have already rescued more than one victim, or saved much valuable property from destruction. Besides, the operator has no need of practice to accustom himself to the use of this apparatus, and to penetrate to great distances, for he can readily change his reservoir when it is exhausted, without retracing his steps.

The second form of apparatus will be particularly useful when the workman has to enter places filled with deleterious gases to the depth of several yards, into wells, cesspools, &c., and remain there for a time more or less long. It consists of two india-rubber tubes, capable of resisting a very strong pressure, attached to the waist of the operator, so as to leave his movements quite free and unimpeded. One of the extremities of these tubes ends in a mouthpiece of horn, similar to that employed in the reservoir of air apparatus. The other end must communicate with the open air. Mr. Galibert has proved that with this apparatus the time during which a person can operate is unlimited, but that it presents the inconvenience of necessitating the quitting the place at intervals and returning, which, in the case of a fire, might be very dangerous. In the apparatus of the reservoir of air this inconvenience is avoided, and this constitutes its superiority over every other apparatus fed by pumps previously employed.

The manner of employing this second form of apparatus differs from that in connection with the air-reservoir in this feature, that, instead of breathing through the two tubes, only one is employed—for one tube must serve for the introduction of the air inspired, and the other for passage of the air expelled. The operator will manœuvre this by covering the hole on the right with his tongue, and in keeping it there while he takes in air, and covering the left hole at the moment he begins to expel air, and so on. This operation, difficult in appearance, is performed without trouble, and, in any case, an error would not be attended by any serious consequences.

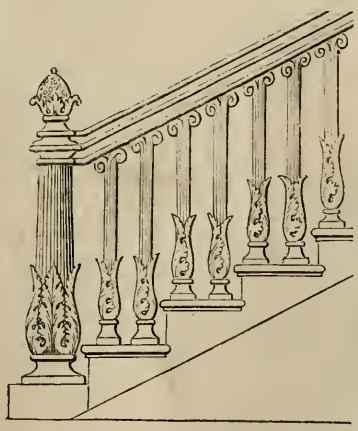
The convenient and efficacious respiratory apparatuses have the advantage of being very inexpensive, costing but a few shillings, so that no workman engaged in occupations where they would prove useful should neglect to provide himself with one. It will afford him much valuable aid in his labours, and probably at some time or other enable him to save life, without the risk of himself becoming a victim.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

BALUSTRADES.

The heavy, ill-shaped balustrades which formerly disfigured the staircases of our mansions and higher class of residences are rapidly disappearing before designs of a more ornamental and appropriate character. The change has been



accelerated in no small degree by the extensive substitution of stone for wood in the construction of staircases. Where the stairs are made of stone, it becomes almost a necessity that the balustrades should be formed of iron or bronze; thus giving the designer or the architect ample scope for increasing the ornamental appearance of the staircase without materially increasing the cost. Where wrought iron is used, the forms are generally of a simple character; but where cast iron is employed, there is practically no limit to the exercise of the designer's ingenuity. The two examples furnished by us this week will show the kind of ornamentation principally in use at

the present day; but in designing balustrades, care should be taken that very few points or projections be introduced, especially at the base of the balustrades, as these projections are apt to catch the dress in passing, and otherwise become sources of personal annoyance.

THE NORTHUMBERLAND HINDS AND THEIR BONDAGERS.

A noteworthy agitation has begun amongst the agricultural labourers of Northumberland. One of the remaining relics of feudalism there is connected with the engagement of hinds by the farmers. The hind hires himself for the year, receiving for his services thirteen bolls of corn at the market price, £5 in money, known by the name of "stent money;" 1,000 yards of potatoes, planted for him; a house to live in, of seldom more than one room; the keep of a cow, and his coals free. These are generally agreed upon, but variations take place, according to bargain. The hind is bound to supply a sufficient worker, or bondager, for the service of the farmer. The bondager is sometimes a young lad, but more frequently a girl or woman, and may be any age between sixteen and forty-five. The farmers prefer women, as they can get as much work out of them as a man; and they may often be seen doing men's work, such as harrowing, driving carts, binding at harvest-time, and other laborious work which elsewhere is always done by men. The hind pays the bondager £12 a year, and provides him or her, as the case may be, with lodgings and victuals. The £12 a year is paid at the rate of £8 in summer, and £4 in the winter. The farmer only pays the hind for the services of the bondager when employed. In summer the hind receives from 10d. to 1s. a day for her services; in winter from 8d. to 10d.; while in harvest-time the pay is 1s. 6d. Apart from the immorality incident to this objectionable system, the hind finds in practice that the bondager costs him more than he receives from his master for her services. This is the ground of objection with the hind, and he very reasonably insists that the farmer should himself pay for the services he requires, as is the case in other parts of the kingdom where a different

system prevails. The employer, however, strenuously advocates the retention of this relic of a barbarous age.

The annual hiring-day was held recently at Alnwick, and a meeting took place to protest against a continuance of the system. The *Newcastle Chronicle* contains a report of the proceedings, from which it would seem that there was little or no organisation. Great numbers of the men assembled in Bailiffgate, and after waiting there some time, a man—one of the hinds themselves—addressed the meeting. His speech, utterly unlike that of a professional agitator, was characterised by homeliness, mother-wit, and utter absence of antipathy to the master farmers. He urged his hearers to stand out against the "bondager" system, and gave incidentally some notion of the sort of life these Northumberland men live. They had to be up at half-past four in the morning, and after working until six at night, could then "come in," and were kept rubbing the "poor skins" of the horses until nine o'clock; then home to bed, and up again at half-past four. He would have them stand together, and then they might ring the knell of the bondager system that day in Alnwick. He was followed by another hind, and it was ultimately agreed that a collection of one penny apiece should be taken to defray the expense of keeping the bellman going about the town to let the hinds and others concerned know that the bondage system should cease. Hiring was almost in a state of stagnation.

Scenes in the House of Commons

DURING THE REFORM DEBATES.

It is said that Expectation stands on tiptoe; but, certainly, the poet who used this figure did not acquire it in the House of Commons, where Expectation, either in the Speaker's or Peers' Gallery, is not allowed to stand at all, but is made to sit down. Were it otherwise, the eager lady had on tiptoe stood to hear Mr. Gladstone's speech. An eminent American writer had to send a substitute sitter to the court of the Strangers' Gallery, as early as six o'clock in the morning, to keep a seat for him on his arrival at four in the afternoon. The avenues of St. Stephen's presented concourses of spectators, who hoped to catch sight of the Chancellor of the People as he passed into the House. Reporters were hurrying to their gallery, the messengers were being marshalled, the telegraphic wires were waiting to transmit the words of the orator as soon as his accents were heard.

No sooner had the procession of the mace arrived, Mr. Dodson appeared, and the list of the Speaker's orders been handed to Mr. Circuit, than the throng of gentlemen whose names were down made a rush to the Speaker's Gallery-door, and impatiently waited until prayers were over. Mr. Russell, of the *Scotsman*, and Mr. W. Rathbone Grey were among the first to enter, where every seat was coveted. In addition to the usual Speaker's List, there is, on great days of interest, also a Speaker's Private List, and a sharp struggle for precedence occurs, lest the gallery should be filled by the private list before the usual one is exhausted.

The interior of the House presented Mr. Dodson, Chairman of Committees, in the Speaker's place, acting as Deputy-Speaker. The accident to Mr. Denison having become more serious, he was unable to preside. On the Wednesday previously he had to be drawn along the lobbies in a sedan chair, and absolute rest has been since enjoined him.

The Members', Peers', Speaker's, and Strangers' Galleries were crowded. Wherever peer could stand, or a stranger sit, on seats or between them, the space was occupied. Members in the House were buzzing about, preparatory to the coming speech. The Duke of Argyll, Lord Cardigan, and ambassadors, prelates, Catholic and Protestant, were among the auditors. The Princess of Wales arrived to hear Mr. Gladstone. Mr. Disraeli was saturnine as usual. The right hon. member for Bucks, Mr. Disraeli, has learned to sit still—a difficult art in that exciting arena. When Mr. Gladstone appealed to him directly, he did not open his eyes; when personal reference was made to him, he did not relax the Sphynx-like insensibility which he chooses to maintain on great occasions.

It is sometimes said that eloquence is losing its reputation; that men are satisfied with what they can read. It would appear that reading much only stimulates the taste for noble speech. The note of the singer, the movement of the dancer, the touch of the artist, can be read about; but to hear them or see them is inspiration. The difference between the spoken and reported speech is that which subsists between the painted and natural rose; both are beautiful, but only one has fragrance. The thronged auditors, who had used high influence to be present at Mr. Gladstone's, Mr. Horsman's, Mr. Lowe's, and Mr. Bright's orations which followed, attest the undying interest which still attaches to oratory.

Mr. Gladstone was received with cheers as he took his seat on the ministerial bench, and when he rose to move the first reading of the Government Reform Bill. He began in grave and measured terms, suited, from their cadence and solemnity, more for the church than the senate. The sense of deference and responsibility was almost oppressive. No fiery phrase or pregnant word enlivened the exordium. In language nervous and earnest, as is the wont of Mr. Gladstone to use, he gave a history and exposition of his subject.

Manifest relief was expressed by the House and galleries too, at hearing that the perplexing, evasive, Rate-paying devices were to be thrown over. There was satisfaction when the Lodger franchise was introduced. A murmur of wonder greeted the announcement of the strange £14 franchise for counties; and a protracted exclamation and universal buzzing when the unfathomable orator announced a £7 franchise for boroughs. The art and clearness of the exposition of the features of the Bill were such as only Mr. Gladstone could exhibit. As a whole, the speech wanted fervour and force. The last Reform Bill which Lord Russell introduced, was described in a faint, half-inaudible, sepulchral speech. His lordship did not come like Mark Anthony to bury Cæsar—but he did it. Mr. Gladstone's silvery voice and ceaseless flow of harmonious periods are always graceful, if sometimes conventional. His speech was equal to the best we have had on any similar occasion since the great days of 1831-2. But it must be owned that it was not equal to so great an occasion, in the hands of so great a master of oratory.

The manhood and intelligence of the nation had so increased in force and sense that they came up for admission to the suffrage. The outside nation stood at the Parliamentary door. It was a proud thing for the country that it had new people anxious to discharge civil duties. It should be a matter of inspiration to plead for them. Mr. Gladstone did not speak as though he felt it. He did not regard the people, it is true, as a Trojan horse, laden with armed men, bent on plunder and slaughter. He gave them the more honourable welcome of "recruits." There were fervour and dignity in the peroration, but in this part only was he eloquent after his own manner. When, indeed, he arrived at the statistics of the Bill, the orator abandoned his grave cadences. Like a sea-bird he plunged into the ocean of figures with an impulse of joy. Here every sentence was natural, rapid, and animated. Again, when he came to Latin quotations and Greek images, he recovered not only his natural manner, but his fine sonorous emphasis. This was particularly marked as he spoke of the "armed men" who issued from the Trojan horse. As the right hon. gentleman pronounced the words he filled the House with a volume of musical and martial sound, which charmed all hearers, and heralded, like a trumpet, the march of his approaching peroration. A few fit and noble sentences followed, in Mr. Gladstone's best manner, closing an exposition rather than an oration such as he is accustomed to give, when loud cheers broke forth.

The Bill brought forward by Mr. Gladstone it is no part of our business to describe politically. This article is restricted to a description of the incidents attending its introduction. It is a Bill which does not meet popular expectation, nor much disappoint it. It will not much offend the Opposition, nor excite enthusiasm, but it will advance the liberties and representation of working men. The most powerful arguments for the Bill were drawn from the conduct of working men in the great cotton crisis. Mention was made of the distinguished, industrial, and administrative efforts of the Rochdale Co-operators. After Mr. Gladstone's speech, the House thinned for dinner, as is usual with it from seven to nine o'clock.

It is a physiological fact, that the Conservative side of the House are always longer dining than the Liberal. Whether it is that the Conservatives have a better appetite, or the Liberals are more temperate, there is no "return" to show; but certainly the seats on the Liberal side are always filled after dinner earlier than the other.

Then followed, during the thin period, a series of small speeches from the minor members on both sides the House. Before long, the authority of Mr. Deputy-Speaker was invoked. Mr. Baines, the member for Leeds, rose to speak; but at the same time Captain Grosvenor, the young member for Westminster, rose, and, as he had not yet spoken in the House, there was a general cry of "Grosvenor, Grosvenor!" Others, however, thought the honourable member for Leeds, who had himself brought in a "single-barrelled Reform Bill," ought to be heard, in preference to the gallant young captain, who, though joint member for Westminster with Mr. John Stuart Mill, had as yet brought in nothing; and great cries were made of "Baines, Baines!" Thereupon the Grosvenorites and the Bainsites amalgamated their cries, and "Baines—Grosvenor!" and "Grosvenor—Baines!" resounded everywhere. Mr. Baines dropped down when the cry of "Baines!" drooped, and Captain Grosvenor popped up as the cry of "Grosvenor!" rose. Grosvenor up, Baines down, went on for a time: at last both honourable members stood up together. The confusion was increased by cries of "Chair, chair!" The Deputy-Speaker not seeing how to calm the tumult, and his cry of "Order, order!" being unattended to, Mr. Disraeli, who had been silencing his friends around him, rose, and, as he always commands a hearing, he said, "It being contrary to the usages of this House that two members should be upon their legs at the same time, it is your privilege, Mr. Deputy-Speaker, to indicate who shall address the House." Upon this Mr. Dodson indicated Mr. Baines. Peace was restored, and the speech of Mr. Baines proceeded. Captain Grosvenor made a maiden speech of some confidence and quality. After much miscellaneous talking, neither very bad nor very good, Mr. Horsman appeared on the scene. The House had then re-filled. He had been expected for an hour or more before he commenced; but he was said to be engaged in the Tea-room, "pointing his sentences." The honourable member for Stroud, though always vivacious, ready, epigrammatical, and antithetical, has the reputation of arranging his ideas by the lamp, and of working up those carefully-turned phrases, which are afterwards given off with a happy spontaneous air. His speech was a model of personality within parliamentary limits. The intention was to provoke Mr. Bright to a reply. Mr. Horsman, however, was unsuccessful in accomplishing this. The honourable member for Birmingham maintained a contemptuous, premeditated, and disappointing silence. Mr. Horsman's speech had that increasing coarseness in its merriment peculiar to him of late, and which hardly warrants a cultivated man in laughing at him. As Mr. Bright did not reply, the debate was manifestly incomplete, and was accordingly adjourned to the next night.

As soon as the private business was over on Tuesday, the Hon. Mr. Lowe rose to speak. It was foreknown that he would do so, and the House was crowded in every part; and the Peers' Gallery and every place of honour in the House (His Royal Highness the Prince of Wales being among the visitors) was filled. Mr. Lowe, remarkable for his Albino complexion and Attic culture, is distinguished in the eyes of strangers, and is a favourite in the House. The ministerial benches were crowded, the Hon. Mr. Goschen conspicuous like a golden star among them. The honourable member wears a pair of glasses, united by a broad gold band, which glitters between his eyes as the light from above impinges them. The Opposition members were no less numerous, though less luminous.

Uprising like a marble pillar, the Right Hon. Mr. Lowe, with white-haired head, and in perfectly perpendicular attitude, proceeded, in quick, energetic, ceaseless sentences, to deliver his expected philippic against Ministers, the measure, and its supporters, especially Mr. Bright. For an hour and a half he kept the House in a scream of merriment, in which the galleries, not authorised to laugh, joined, as did the peers, the clerks at the table, and oftentimes the impartial Chair. At the conclusion of Mr. Lowe's speech, Mr. Villiers rose to reply, and delivered a cogent, very apt, and even eloquent Poor Law Board answer to the honourable member for Calne. This was the commencement of the dinner-time speeches. Among the most

notable of these interregnum orations was a first speech by Mr. A. W. Peel, the youngest son of the late Sir Robert Peel. The honourable gentleman began with prepared and stilted sentences, of the "my name is Norval" species; but he soon passed into natural, sensible narrative. His sentiments have all the rational liberality of his house; he has a voice of considerable power; and is, no doubt, destined to be heard in future with distinction. Mr. Whiteside, who, as Mr. Bright said, would not fail to be amusing, though the country were in ruins, delivered one of his happiest speeches—satiric, without ill-humour. Mr. Whiteside is never so brilliant as when he is good-tempered. Mr. Goschen rose to reply—to Mr. Lowe, it was hoped—when the Deputy-Speaker indicated the new member for Brighton, Mr. Fawcett, as having first caught his eye. The new member, who has a commanding voice, great courage of speech, and an unfaltering flow of balanced sentences, delivered the ablest first speech, as a piece of oratory, the House has heard for a long time. Had the honourable professor not spoken five minutes too long, his speech had been a triumph of effectiveness. When he has caught the elasticity of speech which the House requires, Mr. Fawcett will be an addition to its eloquence and debating power.

At last Mr. Bright arose, and a sound of bustle ran through the House as he did so. An attack on Mr. Bright, vigorous and telling, is always welcomed by honourable members on both sides, not from want of respect for Mr. Bright, but from love of sport. It is well known no man can take better care of himself in that House than Mr. Bright. He is a match for the ablest brain and the most satiric tongue; and he is sure to return, if he condescends to make the attempt, any critical attentions paid to him, with compound interest. His speech gave the House manifest delight; convulsions of laughter ran through it, as hit after hit told upon his opponents. With a voice of greater modulation and power than that of any other living orator, its lowest tones are heard in every part of the House, and its highest ring through the lobbies; but its melody never abates. To this charm of delivery is added a style of unsurpassed simplicity and vigour. Never obscure and never feeble, the structure of his sentences charm as much as their humour. To give examples would be to quote half his speech. When he described Mr. Horsman as dwelling in a "political cave of Adullam, standing at the entrance, and calling to him every one that was in distress, and every one that was discontented," both sides of the House broke into convulsions of laughter; and when he added that the amiable party of two (Mr. Lowe and Mr. Horsman) were so like the Scotch terrier—"so covered with hair that you could not tell which was the head and which was the tail,"—the ministerial benches were as much convulsed as the rest of the House. Mr. Gladstone laughed as heartily as others, and Mr. Disraeli, who never laughs, made the best imitation of it he has been betrayed into for some time. Mr. Horsman, who is as sensitive as he is acrimonious, did not at all like it. Mr. Lowe, who can relish wit as well as employ it, was as merry as any; but the hit at him, which described Mr. Lowe as taking a "Botany Bay" view of the working classes, made a deeper impression, and will live longer in the memory of the public than even the salient illustration of the "Scotch terrier."

This speech closed a great debate. Lord Cranborne and Mr. John Hardy, imitating his namesake, Mr. Gathorne, added a little galvanic acidity; and the first reading of the Bill was accomplished. No question but that the discussion has greatly raised the character of the debating power of the Government; and the burden of the speeches delivered manifested a more respectful appreciation of the claims and character of the working classes of England than the House of Commons has ever before shown.

A New Coalfield.—Some months ago the results of borings in the vicinity of Sessay, in the North Riding, led to the hope that ultimately a deposit of coal worth working would be found on the south side of the Hambledon Range. The search for the mineral has been continued, and it is now reported that, upon Lady Downe's estate at Birdforth, three miles west of Coxwold, the engineer has met with a thin seam of very good coal, with indications of a thicker and much more valuable seam below. A shaft is to be sunk. Other owners are about searching for coal all along the moor base.

How the Rate of Wages may be Raised.

BY ARTHUR HOUSTON, M.A.,

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In our last article on the Rate of Wages (see page 121), we explained what were the circumstances by which, in a state of unrestricted competition, the value of labour would be determined. A state of perfectly free competition, however, is a thing which society has, perhaps, never yet seen, and probably is never destined to see. It was, notwithstanding, no less necessary to ascertain with precision what the circumstances referred to were, inasmuch as we have already seen that the success of any attempt to control the spontaneous action of the natural laws of political economy will, in a great measure, depend upon the extent to which their opposition has been calculated upon and provided for. Nor, indeed, is this less true of those laws of political economy which belong to the class we have styled *artificial*. Positive law and established usage relating to value may prove as troublesome impediments in the way of effecting any alteration in it, as demand and supply. For our present purpose, however, which is to ascertain how the value of labour may be raised, this latter consideration is of the less importance, as whatever influences are now at work tending to make the value of labour deviate from what in a state of pure competition it would be, are mostly such as tend to keep it above rather than below that level.* There are now, fortunately, no laws against employers paying workmen more than a certain wage, or against workmen combining to procure, by peaceable means, better terms from their employers. In making any effort, therefore, to raise the value of labour, we shall have to take account only of the resistance presented by the natural law of demand and supply, there being, as we have intimated, no artificial obstacles created by society to obstruct our exertions.

Assuming, now, that in a country such as the United Kingdom, where there were no artificial influences tending to keep down the value of labour, it was nevertheless so low that the working classes and those interested in their welfare were resolved to try to raise it to a more satisfactory level, let us inquire what means should be employed to accomplish that object.

There are obviously two ways of setting about raising the value of any article. First, there is what may be called the indirect method—namely, by acting on value through demand, or supply, or both; increasing one or diminishing the other, or so altering the proportion between them that, as compared with the supply, the demand shall be greater than it was previously. Secondly, there is what may be called the direct method—that is to say, fixing at once upon a value below which the article is not to be bought or sold, and enforcing that regulation by law, public opinion, combination, or some other means.

That such a mode of proceeding as the latter may be effectual is put beyond all doubt by the fact, that the value of one of the most important of all articles of wealth—namely, land—is, over a large portion of the globe, fixed entirely by law or custom. In those parts of Continental Europe, for example, in which peasant-proprietorship does not prevail, the rent of land—which, of course, is only another word for the value of one year's possession and use of it—instead of being settled by the competition of rival bidders, as in the United Kingdom, is most frequently determined by a custom that landlord and tenant shall divide the produce, in a fixed proportion, between them. In India, again, the cultivators hold their lands at a certain rent, which cannot be *raised*, although in practice it is often found necessary to accept *less* than this maximum. But land is not the only thing that is removed from the domain of unrestricted competition—is not the only article whose value is regulated by other influences than those of mere demand and supply. The remuneration of professional men—in other words, the value of their services—has long been determined by custom, sanctioned by the learned bodies which preside over each profession, or, as in the case of attorneys and solicitors, modified by positive law.

With such examples as these before us, it would be idle to deny that it is possible to act on value in the direct mode above indicated. But, nevertheless, such a method of going to work is beset with great difficulties, for a reason already glanced at—namely, that it leaves out of sight the resistance which the spontaneous action of the law of demand and supply will offer to the accomplishment of the object in view, and the possibility that such object, though secured for a time, may in the end be entirely defeated. It will only be necessary to refer to the example given towards the close of our last article for an illustration and a proof of this fact. It is true that where direct attempts to regulate the value of labour in this way have been made under favourable circumstances, and where they have been persevered in for a sufficient time, they have often succeeded, the demand and supply adjusting themselves to the value, instead of the value adjusting itself to them. It will, however, be found on examination that, in many cases where it would appear at first sight that this direct method of acting on value was employed with success, the result was due principally to the assistance it derived from the effect produced indirectly on value by some control exercised over the supply. And this is especially true of attempts to raise the value of *labour*. These have, as every one knows, been made chiefly by combinations of workmen engaged in particular trades. Their course of proceeding has usually been to begin by fixing upon some rate of wages below which they would not consent to work. So far they were endeavouring to raise the value of their labour by what we have styled the direct method. But experience soon taught them that this was not enough; that to succeed in permanently securing the rate of remuneration so fixed, it was necessary to limit the number of persons seeking employment in their particular trade. If this were not done, the capital invested in that branch of business being only sufficient to give employment to a certain number at that rate, and there being therefore an overplus of unemployed men, only too glad to accept of almost any terms, the competition of these persons constantly endangered the position of those employed at the rate of wages fixed by the combination. Many such efforts accordingly failed through this obstacle to their success. The law of demand and supply proved too strong for the combination. The workmen usually had the sagacity to perceive the cause of the failure, and to take the proper means of providing against its recurrence. Seeing that so long as a surplus of unemployed members of the trade existed the possibility of maintaining the advanced rate of wages was hopeless, they devised means for preventing the continuance of such a surplus. This is the origin of the rules regulating the number of apprentices, prohibiting overtime, and in some cases limiting the amount of effort which the workman was allowed to put forth. The justice and expediency of all such regulations we intend to consider hereafter. At present it is only material to observe, that the conduct of the combined operatives in this matter was in strict accordance with what political economy would point out as a method of accomplishing their purpose, be it a proper or improper one. By such restrictions they diminished the supply of labour in all three of the elements of which we saw in our last article that the supply of labour was composed; and by this diminution of the supply it was kept down to the quantity which, at the rate of wages fixed, could be paid for by the amount of capital embarked in the business. In other words, having determined the value of labour beforehand, they adjusted the supply of labour to the demand accordingly, and thus evaded the difficulty created by the spontaneous action of the law of demand and supply.

* An important exception to this rule occurs in the case of women's work. Their wages are almost universally lower than those of men engaged in the same employment or employments which, from their hardship or other circumstances, ought to be paid at the same rate. This difference of remuneration is partly attributable to the inferiority that sometimes, but not always, belongs to the quantity and quality of the work done by women. Any inequality beyond this can only be accounted for by custom.

Facts prove that in this country it is cold and not heat which exerts the most deadly influence on the mortality; and what is still more striking is the fact that all our so-called epidemic diseases, excepting alone the bowel complaints, increase with the cold and diminish with the warm weather.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

In reply to several correspondents who are anxious to compete for the prizes, but are uncertain whether they may fairly be considered working men, we beg to say that we do not wish to define the term too narrowly. All who work at any handicraft; foremen, small employers, being themselves workers; assistants in retail shops, domestic servants, porters, and other unskilled labourers—all are entitled to compete. In doubtful cases, not easily defined, it will be left to the adjudicators to decide. If any man objects to being called a working man, and asserts that his occupation raises him out of the ranks, he may fairly consider that he is disqualified as a competitor for the prizes.

"All labour is sacred."—*Carlyle.*

THE WORKING MAN.

MARCH 24, 1866.

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THE MORTICING MACHINE.

Parliamentary Definition of the Working Man.

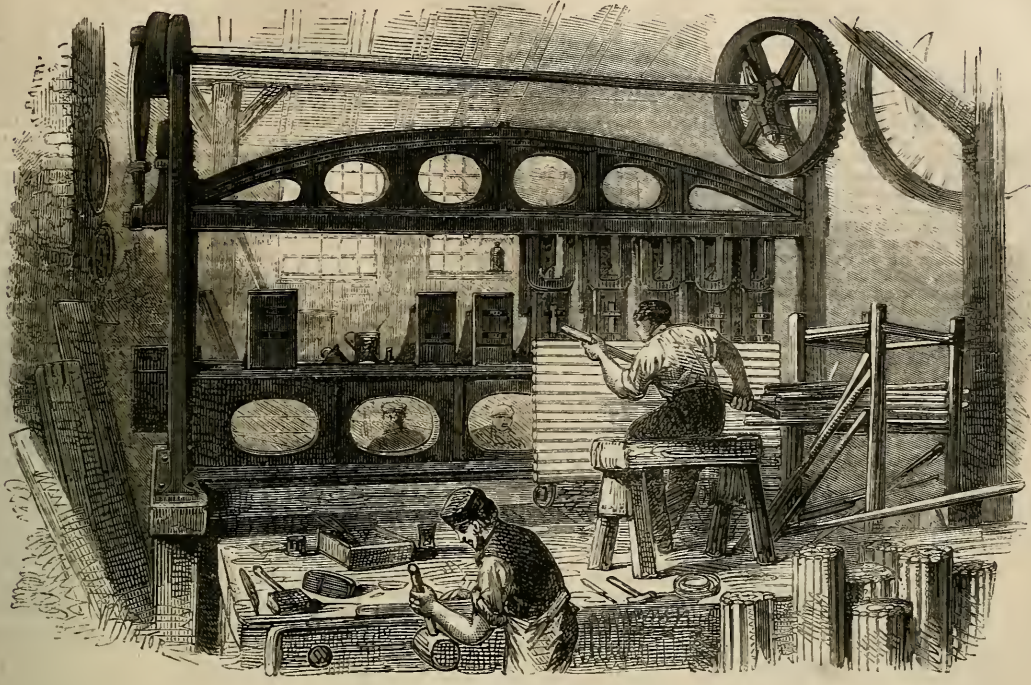
"Dryasdust" was a statistician; and if the race are numerous, they have had a treat this week. The Government have published a heavy volume, of 200 pages of figures, upon the state of the franchise. It appears from this source that the number of the working class now upon the register of voters make a total of 128,000. In every 100 electors throughout the country there are now, according to this new authority, twenty-six who belong to the working class. It is doubtful whether there are so many as 100,000 electors of the class understood by Parliament to be working men. A Parliamentary definition of a working man is, that "he should be a journeyman employed by a master at daily or weekly wages; but including men who work daily at their own handicraft without a master, and even some employing a journeyman or an apprentice, provided they derive their chief support from their own hand labour, and not from the labour of others, or the profits arising from the employment of capital or the supply of materials." No artisan, mechanic, or labourer was to be excluded because he had a shop which was kept by his wife or other member of his family; but, as a general rule, shopkeepers and their shop assistants were not to be inserted. Overlookers, superintendents, foremen, and others employed among or in connection with operatives, workmen, or other daily labourers, were not to be included, unless actually employed in daily manual labour in the same manner in every respect as the men who were under them. The returns under this head show that the total number of electors who come within the description of mechanics, artisans, and other persons supporting themselves by daily manual labour in England and Wales, is 128,000, allowing for deductions needless to specify here.

So far as we remember, the attempt made in these Franchise Statistics to define the working man is the first which has been made for Parliamentary purposes. It is not to be assumed that the parochial authorities in the numerous parishes in England and Wales have applied this rather complex definition with very great accuracy. In some instances ignorance, in others, prejudice, and in important instances, political bias, has, no doubt, affected these returns. Take, for instance, such a well-known working class town as Ashton-under-Lyne, represented by Mr. Milner Gibson, President of the Board of Trade. In this town the working class are known and easily definable, if definable anywhere at all; and since the President of the Poor Law Board, who collected the statistics, is member for the town, here, if anywhere, returns which could not be disputed might be expected. Yet, as it happens that the parochial authorities of the town are of the Conservative school, and being unfriendly to a Reform Bill, or deeming it unnecessary, they are said to have returned the largest number they could under the designation of the working class, with a view to show that a sufficient number of that class are already on the register. They have, therefore, so it is alleged, made a very liberal interpretation of the Parliamentary definition. It is possible that in other constituencies Radical overseers may have adopted a narrow interpretation of the same definition. However, Ashton-under-Lyne is a singular, if not typical instance, and Mr. Hugh Mason, an intelligent magistrate of the town, has had the registers carefully examined, and has publicly reported the number put down in the Government returns is one-half greater than the actual working class electors! Mr. Hibbert, M.P. for Oldham, has borne similar testimony. Allowing, however, for political bias on both sides, the working men who are at present electors cannot be taken at more than 100,000. Mr. Bright, an authority on the subject, says they are much less, and that the Government statistics are delusive.

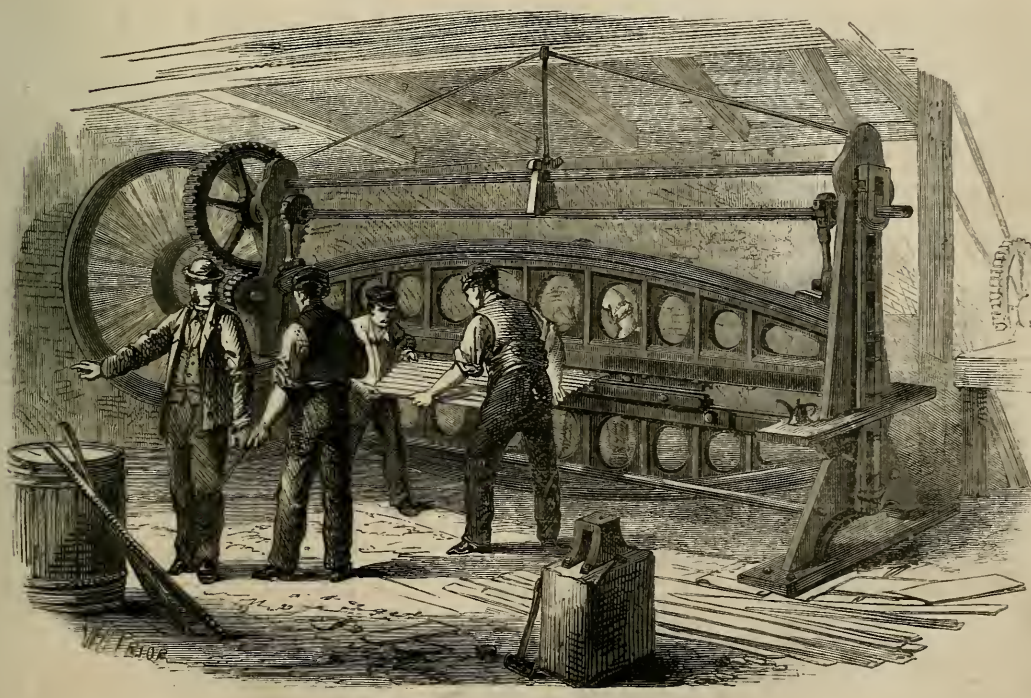
In a curious passage of Mr. Gladstone's speech, on introducing the new Reform Bill, the right hon. gentleman showed that he had made the working man the subject of financial study; and he explained how he determined a man's income from the value of the house he occupied. He said—"£10 clear annual value, when you make the proper addition for rates and furniture, must mean that the house costs the man not less than £16. I think I am safe, and speak with moderation, when I say that the working man does not spend more than one-sixth of his income on his house. As well as we can gather, it is one-sixth; therefore, his income must be £96, or, in other words, without making any allowance whatever for sickness and interruption of work, he must receive £1 17s. a week; or, if we allow for necessary breaks, £2 a week wages: but it is a small proportion of the working class that get £2 a week wages; and I do not think, therefore, that the franchise can be said to be literally and largely within the reaching of the working man at £10 annual rental. The £7 franchise will certainly work in a different manner. The net £7, allowing 60 per cent. for rates and furniture, would give a gross sum of £11 4s. That would represent £67 4s. But instead of thirty odd shillings a week, the wages of a man occupying such a house would be a little under 26s. a week. That sum is, undoubtedly, unattainable by the peasantry, and by mere hand labour, except in very rare circumstances; but it is generally attainable by artisans and skilled labourers." And so we learn the Chancellor of the Exchequer's method of discovering a working man's wages.

The character which the working class received in the debate, which we have elsewhere noticed, was more discriminating and respectful than has ever before fallen to them. The Co-operators of Rochdale, to whom in these pages reference is often made, Mr. Gladstone distinguished by a remarkable tribute, which we have quoted in another page. Only a very small party in Parliament take what Mr. Bright aptly satirised as the Botany Bay view of the working man, and we think we may congratulate him on juster appreciation and fairer treatment than heretofore.

THE WORKSHOPS OF THE WORLD.



MACHINE FOR MAKING SELF-COILING WOODEN SHUTTERS.



THE RECIPROCATING CORRUGATING MACHINE.

Manufacture of Revolving Shutters.

Revolving shutters, the subject of our present article, have been in use for the last twenty-five or thirty years, but when first introduced were of very crude and now nearly obsolete construction, being far too complicated and expensive for general use, and although a desideratum much required by modern civilisation, only obtained a limited amount of patronage, owing to their great expense, complication, and difficulty of application, and would never have been capable of universal adoption had it not been for the ingenuity and great perseverance of Messrs. Clark and Co., of Rathbone Place, London, who have, during the last ten years, obtained no less than ten patents for various improvements in revolving shutters, and have recently erected very extensive premises in Rathbone Place, Oxford Street, covering an area of upwards of an acre of ground, and five floors in height, fitted with powerful steam-engines, and extensive plant of novel machinery

(a portion of which we have illustrated). Their works give employment to several hundred hands, and are capable of producing several thousand feet of shuttering daily; and being the sole patentees and manufacturers of self-coiling shutters, they have to supply the whole world.

The most important of the improvements introduced by them are their patent self-coiling principle in one sheet of steel, and of wood laths connected with bands of steel. Revolving shutters have hitherto been constructed of laths of ordinary hoop-iron, connected by hinges rivoted thereto, and are consequently composed of innumerable pieces, and are also very heavy. These hinges, rivets, and pins are constantly getting out of order, and, moreover, do not possess one single element of security, as an ordinary burglar, with the aid of a jemmy, can with the greatest ease, and without noise, force off the hinges and detach one lath from the other. These shutters are also, from their construction, necessarily very heavy, and require complicated machinery to open and close them, which adds greatly to their expense and inefficiency. The steel revolving shutters of Messrs. Clark and Co. are, on the contrary, of the most simple construction imaginable, being of one sheet of steel without hinges, pins, or rivets. They are impregnable; no "jemmy" or burglarious instrument can be brought to bear upon them, and being of tempered steel, they cannot be cut or drilled. It is well known that steel is of twice the strength and ten times the durability of iron. A steel shutter, therefore, of this construction is at least double the strength, although only half the weight, of the iron shutter; and its lightness, coupled with its inherent self-coiling tendency, renders the use of the complicated gearing or machinery wholly unnecessary; it does not even require a roller to coil upon.

The machinery for the manufacture of the steel revolving shutter is extremely ingenious, although simple. The steel is reduced to sheets by the ordinary process of rolling to the required thickness; these sheets are then corrugated by a machine expressly adapted for the purpose, as represented in our illustration. This operation is sometimes performed by fluted rollers, but only produces one size of corrugation. These rollers are not so much used as the reciprocating corrugating machine. The corrugated sheets are then subjected to a process of flattening, sometimes by rollers and sometimes by hand. A strong T iron bottom bar is riveted on the lower edge of the shutter, and the upper edge is affixed to a machine which is designated *a curling machine*, which produces a roll or curl on the upper edge as a finish, of great stiffness. The shutters are then, by means of tempering and rolling, given a permanent tendency to coil, thereby rendering them self-coiling, so that, if laid out on the floor, they will roll or coil themselves up into a cylindrical form.

When placed in position, iron or wood grooves are used for them to slide in, and a circular space at the head of the window is left for them to coil into. No machinery, rollers, or balance weights of any description are required, and there is no working part but the shutter itself, which is in one piece or sheet; the shutter is merely raised or lowered by hand. It is obvious that a revolving shutter of this description is almost impossible to get out of order, and is as simple as it is secure.

The purposes to which a shutter or closer of this simple construction can be applied are innumerable. Messrs. Clark and Co. have many thousands of them in use for closing private house windows, shop fronts, banks, insurance offices, bankers' and solicitors' fittings, closing doors, coach-house gates, railway sheds, cabin doors, hatchways on board ship, book-cases, dividing rooms, fire-places, &c.—in fact, wherever an opening has to be closed, these shutters are the most secure, simple, and efficient.

One of these steel revolving shutters has been recently erected at the Theatre Royal, Edinburgh, for dividing the auditorium from the stage. It is the largest revolving shutter ever manufactured, and, we believe, works admirably. The doors and windows of all our principal public buildings, music halls, and theatres are closed with this shutter. They are now also being extensively used on the Continent; Messrs. Clark and Co. having now in hand orders for fitting several Continental towns (including the new capital of Italy) with them.

The price of the steel revolving shutters is about half that of the ordinary revolving iron shutters: nay, more than this, by means of the principle of *self-coiling in wood*, the humblest cottage can be fitted with a revolving shutter as cheap as the clumsy and inefficient folding shutter hitherto used, which will prove a great boon to the working classes.

The wood self-coiling shutters are manufactured by machinery specially adapted for the purpose. The laths are of several forms; the cylindrical laths are prepared by means of rotary cutters, such as are used in the manufacture of umbrella-sticks, pencils, and other like round articles, as well understood, the cutters being mounted radially on a rotating socket, with the cutting edges towards the centre, through which the lath of wood is passed. The cutter socket, or chuck, rotates at a high velocity, and the wood is fed up to it by feed-rollers or other self-acting means. The rods, or laths, having been so prepared, are then taken to the machine, in which they are to be punched and threaded on the metal strips, as before mentioned.

This machine is of the length of the rods, and equal to the widest shutter required, and is fitted with a number of punching parts, adjusted at intervals throughout the length at the distances apart required for the steel strips to be inserted. The metal strips are placed in position on the machine, and by a process extremely difficult to describe without the aid of diagrams, the wooden rods are pierced by means of punches, and slipped on to the metal. The ease and rapidity with which this is effected is truly astonishing, a few minutes only elapsing before a complete shutter is formed, by the wooden laths being threaded, as it were, upon the steel thread, or coil. The laths for the bivalved shutters are prepared by a machine having four sets of rotating cutters, through which the wood is fed by rollers. The laths leave these machines in a perfect state. They are then taken to the morticing machine shown in our illustration, where they are pierced with slits for the reception of the metal coil. The rapidity with which this operation is effected is marvellous to those accustomed only to the older methods of morticing, each worker being capable of doing nearly 100 per hour.

*Happy Homes for Working Men, and How to Get Them.**

The question relating to the condition of the homes in which so many of our industrious toilers are lodged, is one of vital interest, both to the working man himself and to those who naturally take an interest in his welfare. Dr. Begg undertakes to show what these homes should be, and how they may be obtained. No mere extension of the barrack system will, in his opinion, meet the evil. "Man must not only have a covering, but a *home*." The idea of home, with all its delightful associations, its concentrated power, and far reaching influences, is as certainly of Divine origin as the existence of man himself. To have this home properly established, the author declares to be "an essential condition of individual happiness, Christian security, and national well-being."

Taking this as his starting-point, Dr. Begg shows that the first step necessary is to bring suitable houses into existence in sufficient numbers; and explains how this may be effectually and profitably accomplished. To assist in rendering this portion of his work as practical as possible, the details necessary to be attended to in forming Joint Stock Co-operative Building Societies, under the Limited Liability Act, are given in a series of facts, and in a carefully prepared deed, to which is added a "form of contract of sale and purchase."

The well-known manner in which working men may, by periodical payments, purchase the houses in which they reside, is fully illustrated in another portion of this little volume, which will be found interesting, as showing how well the author had studied the question at a time when it was less generally understood than at present. Dr. Begg points out the much wider application of which the Property Investment Companies, or Land and Building Societies, is yet capable. The more that the savings of the working classes are invested in such societies, the more do we increase the strength and prosperity of our social institutions. This was pleasingly illustrated in England during the recent time of trial. The £10,000,000 to £20,000,000 lately invested in freeholds and other property by the working classes, especially in Lancashire, constituted to a very large extent the stability of the country during the Cotton Famine. Lord Stanley manifested his good sense and sagacity, quite as much as his right feeling, when he lately expressed a wish that every working man had a house of his own. With that sentiment of Lord Stanley every right-thinking man will cordially concur. It is, as Dr. Begg justly observes, "the strongest foundation on which patriotism can rest, and it may well be called 'the cheap defence of nations.'"

Not the least important or interesting portion of the book is that containing an essay by Mr. James Symington, a working man of Edinburgh, which contains a general and intelligent view of the whole subject from the working man's point of view. This essay gained the first prize of £5 in a competition in which thirteen working men took part.

Mr. Symington, like Dr. Begg, is a strong advocate of the house-purchasing system. "By the payment of a very trifling sum, indeed," says he, "it is within the power of the working man struggling to acquire a house of his own, to derive peace of mind during life; and, in the event of his premature death, the satisfaction that his longed-for property will not be lost, but secured for his sorrowing family, who will be possessed of the means of support and independence, when the arm which previously fought on their behalf the battle of life lies mouldering beneath the clods of the valley."

* "Happy Homes for Working Men, and How to Get Them." By James Begg, D.D. London: Cassell, Petter, and Galpin. 1866.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

I have not been able to include among the foregoing clubs any of those in Scotland, because no returns for this year have yet been received from them; but from the first annual reports, both of Edinburgh and Glasgow, received last year, there is reason to believe the clubs there are exceedingly useful and prosperous.

We must now turn to the consideration of the causes of *failure*, partial and total, in these Societies. They are, of course, very various, and, for the most part, are either closely connected with the particular circumstances of each individual club, or may be classified under the head of infringement or neglect of the general principles I pointed out in a former paper as being, according to experience, essential to success. There is, however, one source of mischief to clubs, from which they have so universally and seriously suffered, that it must be noticed *in limine*, and with all the emphasis which so ruinous and fatal a mistake requires; I refer to the practice of admitting youths as members. The mischief caused by this practice to the club movement generally has been incalculable. It was generally supposed, at the outset, that at eighteen youths were sufficiently aged to be suitable members of a Working Man's Club. Sorrowful experience has proved this to be a mistake, and, moreover, that large numbers have no scruple in declaring they have reached even that age long before it is the case. It seems a great pity to have to exclude those who press in so eagerly; but common sense might have taught us, sooner than experience, that grown men will not sit down for a quiet chat or game where a number of lads are listening to them, or "larking." The men don't complain much; they simply stay away, return to the public-house or the street-corner, and give the club a bad name, remarking that "*they* don't want to be among a lot o' boys." Of course not. Do gentlemen admit juveniles into their clubs, or take their evening's relaxation or amusement in the company of lads, not members of their own family? The grown members of a club do not object to the company of youths when listening to a lecture, concert, penny reading, &c., nor to their partaking with them in general in out-door sports; nor is there any reason against the presence of youths in a silent reading-room; but in conversation, smoking,

* Continued from page 170.

and recreation rooms, it is simply fatal to obtaining the attendance of men.

The best course to adopt, and the reflections which these facts suggest, must be left for the present. I have now simply to implore all persons interested in Working Men's Clubs and Institutes, whether of the upper or the working classes, to accept and act on the results of universal and invariable experience. It is melancholy to see a great movement like this continually checked and maimed by one gross, palpable error, which has been exposed and denounced a hundred times in every possible way. But it is so hard to be wise by other people's misfortunes, and most of us insist on buying our own experience of evil, often at a terribly costly price.

Considering the unscrupulous way in which youths are found to falsify their replies as to their age, I believe, now, that the general rule for admission to Working Men's Clubs should specify *twenty-five* as the age necessary to be attained before they are eligible. It was hoped, recently, that twenty-one would be sufficient, but I fear it is absolutely necessary, if the clubs are to be for *men*, that the former should be the limit, unless the arrangements can be made in a club-house which I shall speak of in a separate paper.

Let us now consider various individual cases of clubs that, although they have had much energy, money, and self-sacrificing zeal bestowed upon them, and have done great good, have not attained that marked success which they would seem to have deserved, and which characterises those above mentioned. In general, the initial letter only will be given of any club whose defects or failures are thus commented on; enough to show that a particular club is being specified, and not merely a hypothetical case. But the club at *Bolton* has been, and is doing so much good, so near becoming a magnificent success, that we need have no scruple in referring to it by name, and specifying what, after a lengthened discussion with its friends and managers, I believe to have been its difficulties and mistakes. They are few, but very instructive.

This *Bolton* Club, then, let me say, possesses the best in-door and out-door premises of any club with which I am acquainted. They have some excellent men on the committee, both working men and a few of the class above them, all working harmoniously, and, above all, they have an able and active secretary. They began (February, 1864) with great *éclat*, originating at a very large and enthusiastic public meeting the previous November, and, for a time, had remarkable success. During one of their first half-years they had 307 quarterly members, paying 1s. 6d. a quarter, 4,396 weekly payments of 2d. each, and 10,509 visitors' payments of 1d. each (for a single night). Two amateur concerts or entertainments were given every week. Several Provident and Trade Societies removed their meetings from public-houses, and rented rooms at the club. Their eighteen rooms, including the dining and refreshment room, were thronged night after night. The gymnasium and skittle-ground were in constant requisition.

A year after (January, 1866), I found the numbers returned were 100 quarterly and 80 weekly, with 300 visitors per week. These are figures high enough to show what an amount of good the Bolton Club is still doing, and unsatisfactory only when we compare them with the former amount, and consider what this society, with its eminent advantages and earnest promoters, ought to be accomplishing. Let us see, then, what have been the hindrances to their greater prosperity.

The first error I would refer to as committed by the Bolton friends is simply that on which I have just dwelt, and in which nearly all other clubs have kept them company—viz., that of admitting youths. The nominal age fixed was eighteen, but large numbers, considerably younger, pressed in. The usual evils ensued.

The next was confining those members who wished to smoke as well as talk, to one room, not very large, *and at the top of the house*. I may be allowed here to say that I fully share the strong convictions which many persons entertain as to the injurious effects of smoking, especially in youths and persons following sedentary occupations. But it is quite certain that if Working Men's Clubs are to answer the purpose for which they are established, smoking must be allowed in the common club-room appropriated to conversation and refreshments, and that this room should be on the ground-floor, or easily accessible, and at least as thoroughly comfortable and inviting as a public-house tap-room. I am aware that the managers of the Bolton Club were hampered in this matter, and could not, at first, well make any other arrangement. I only mention this, among other hindrances, to their greater success. Another serious drawback during their first year was that they were unfortunate in their steward. But, like the previously-mentioned evil, this has been since rectified. A fourth great difficulty (though, had all other things gone well, it might not have been a mistake) was getting saddled with a debt of £700 for furnishing, fitting-up, alterations, &c., in addition to the interest (about £260 per annum) on the remainder of the purchase-money; for this debt bears a very heavy interest, and has been a mill-stone round their necks. A fifth hindrance has been that with all their large and commodious premises they have not got a room large enough to hold more than 130 people, whereas they ought to have had one that could accommodate, for their weekly entertainments, at least 400 or 500, including the members' wives. Next must be noticed the absence of classes and means of mental improvement. And lastly, the admission of anybody, who liked to pay their penny a night, to all the advantages of the club.

Now in talking over the whole subject with the committee, the other day, they said, "Ah, Mr. S., you drew such a beautiful picture of what a club should be, at the public meeting, that we were too enthusiastic, and started on too grand a scale!" "No," I replied, emphatically, "no. You did that which was right and true; and I did not—could not well exaggerate what the club should do and be. Only you did not fully carry out the scheme as I proposed it, and which you rightly, at first, viewed in such bright colours." For instance, I laid great stress on the club being, also, an Institute—on its doing something to promote the intellectual life and growth of its members; but when I reminded my friends that this had been almost entirely omitted, they replied that they had not wished to interfere with the Mechanics' Institute, and admitted that they thought the club should be confined chiefly to purposes of social intercourse and recreation. I urged what I have already laid before the readers of this Journal on that point in speaking of the great principles that should guide the managers of these societies. Then, again, I reminded them that at the public meeting I also dwelt upon the necessity of cherishing a strong corporate "society" spirit among the members, but that these penny admissions of strangers interfere fatally with that. A number of persons come in who have no interest in the club, no bond of union between themselves and one another, or the members of the club. If the somewhat degrading and decidedly unspiritual, but marvellously attractive and tenacious bond of the "pewter pot" is taken away, we must certainly see that some other, equally powerful, if possible, is substituted in its place. In too many clubs, while the attractions and *nexus*, the uniting principle, of the public-house have been righteously discarded, the higher elements have not been sufficiently introduced. No public spirit, no warm and deep attachment to the club has, in consequence, been evoked. The vacuum has not been filled up which yawns in most working men's minds at the end of the day's work; nor have their animal, social, and intellectual craving been satisfied. No wonder that clubs have not been a uniform success.

But the Bolton men would have been working quietly and successfully through all these drawbacks but for that heavy debt of £700, at eight or nine per cent. And there I cannot help thinking, with all deference, that both the working men and their employers were somewhat to blame. If, when the first enthusiasm for the club was felt, and its great advantages thoroughly appreciated, the members had tried, and been encouraged by the capitalists, to raise the required sum in shares instead of borrowing it, might not this have been accomplished? The men would have been putting forward self-help, and wealthier people, seeing this, ought easily to have been induced to do more than they did. About £1,200 was generously raised among the middle and upper classes, but if the men had put their own shoulder to the wheel, doubtless a few hundreds more would have been willingly given. Now, I think that one main reason why more was not attempted by the members of the club was because they had not enough of that corporate spirit above referred to. Had they felt as many working men do when they have formed a Friendly, Trade, Co-operative, or Temperance Society, the Bolton Club would long ere this have been all it ought to be. Had they merely knocked two rooms into one, or run up a temporary "lean-to," for their entertainments, which the masons and carpenters among them ought to have been able and willing to do very cheaply after their day's work, they would have taken several pounds a week during the winter months, and be rapidly paying off their debt. Let them see what those Buersill spinners and weavers did in their own county, and while labouring under the same difficulties arising from the cotton famine.

On the other hand, many clubs might learn from the Bolton managers and promoters a lesson of liberal giving and devoted work, which might, perhaps, have been all that it was necessary to draw from their history had they not been "as a city set on a hill," and had they not done so well that it is impossible to help regretting they have not done better.

(To be continued.)

Things Talked About.

A splendid compliment was paid by Mr. Gladstone, in his Reform Bill speech, to the Rochdale Pioneers. When enumerating some of the boroughs where the working classes deserved a larger measure of enfranchisement than they now possessed, he said—"There is a town that deserves special mention—I mean the town of Rochdale—not only on account of the distinguished man (Mr. Cobden) by whom it was about twelve months ago represented, but for another reason; it is the town that probably has done more than any other town in making good to practical minds the case for the enfranchisement of the working class; the town where originated that remarkable system—at first sight, I don't hesitate to say, that most perilous system—of ousting the trader and taking into their own hands the means of their supplies, and who, by their intelligence and self-guiding power, brought to a successful issue what has been a source of the greatest comfort and profit to themselves."

Four gifts of books, maps, and other aids to knowledge, of the value of £15 each, are now vacant under the provision of the trust deed by which the fund raised as the working men's memorial to Sir Robert Peel, was invested for the purpose of devoting the proceeds to gifts to public libraries, mechanics' institutions, reading-rooms, &c., in the United Kingdom maintained by working men. Forty-one institutions of the kind have already received gifts; and now, as we have said, there are four donations to be made. Working men's clubs would be very fitting recipients; and, for the information of committees and secretaries, we may state that applications must be made, on or before the 10th of April, to the secretary of the University College of London.

A curious—let us hope, extreme—specimen of the public-house benefit societies has within the last few days been brought under the notice of the Manchester police magistrate. Thomas Lomas, the landlord of the "Dog and Partridge," Oldham Road, was summoned, as the treasurer of the Odd Fellows' Equitable Assurance Society, for refusing to pay to a widow, named Jane Adams, the sum of £4, which she claimed in respect of her husband's death. The deceased had contributed for eighteen years to the society, and after his death application was made for money to pay for his burial. The widow was then told that the funds were exhausted. The magistrate held that the defendant was liable, and ordered him to pay the money. Another and similar case was then gone into. The collector of the society gave some striking evidence. "He was appointed collector, about twelve years since, by a man named John Lancaster, now dead. One of the committee was Thomas Mason, a man eighty years old, who lived now in one place, now in another. Witness had never seen any of the committee during the past three years. The members, 150 in number, and all poor people, were never called together by circular, the only business transacted being the collecting of money. Witness had received 7s. per week in subscriptions for the past eighteen months. No notice had been given to the members of the society's stoppage." In this case, too, the defendant was ordered to pay the amount, and it was intimated that he had a narrow escape from a more serious charge. We fear that many more of the so-called friendly societies, got up by publicans, are in what is sometimes called a "very shaky" state.

The miners' dispute in Devonshire and Cornwall is assuming formidable dimensions. There was a very remarkable gathering on the 13th inst., attended by about 1,000 miners of each county, at a spot—the summit of a lofty hill—commanding a magnificent prospect, where, in other days, many an important conference has taken place. Females were present, and the somewhat unusual preliminaries of singing and prayer ushered in the business of the day. For five hours the discussion lasted, and ultimately the following resolutions were agreed to:—"That this meeting declares that, as an association, we are determined to stand by our rules

and maintain our society;" and "That, as all loyal subjects of Her Majesty, we will put ourselves in communication with the Secretary of State, and demand protection." It was further agreed that a deputation of miners should be appointed to meet the landowners, adventurers, and captains, in consultation, in order to bring the present dispute to a close.

A novel international exhibition will take place at Archachon, near Bordeaux, France, in July next. The Minister of Marine and the Colonies will preside; and the Commission invite, "from the seaports of their own country, and the fishing ports of their maritime neighbours, contributions to the exhibition. These are variously classed, and comprehend specimens of cured and preserved fish for food; oil for use as medicine; chemical products extracted from seaweed; shell, amber, pearl, colouring matter, &c., in connection with art; industrial products, such as oils, skin, whalebone, sponges, &c.; marine manures, shell, sand, and seaweed. Another class includes tools and machines for making boats, models of fishing-boats, of oyster beds, and of salmon ladders; lines, nets, and fishing apparatus, and oyster dredges. Then there are instruments for preserving and smoking fish, with plans and models of curing establishments, and descriptions of modes of packing and transporting fish. There will be collections also of memoirs on the subject of fish and fish culture and management, with plans, charts, drawings, and photographs. For these, prizes will be awarded according to their respective merits; and the cost of transporting the articles for exhibition will be borne, either altogether or in part, by the administration of the exhibition." Less showy, perhaps, but certainly not less useful than preceding international exhibitions, this display promises valuable results. Articles for exhibition must reach Archachon by the 18th of July, and the entry of the articles is desired to take place early in April.

Hitherto agricultural labourers have not taken a prominent part in organisations for the maintenance of wages. Indeed, with the exception of the eight famous Dorchester labourers who, in 1834, were punished for belonging to a secret society, the farm labourers have been singularly quiescent under great hardships. But some of the Kentish labourers are now moving in earnest. From 400 to 500 have gathered at Maidstone for the purpose of concerting measures to obtain a higher rate of wages. They ask for sixpence a day more, and twopence in the shilling advance upon the present scale for piece work; to leave work at four o'clock on Saturdays, and to have fourpence an hour for overtime. A memorial, with nearly 1,000 signatures, will be presented to the farmers of West Kent.

The masters and men in the building trade at Wolverhampton have made an amicable and rational settlement of the dispute between them. They have met and discussed the points raised in a friendly spirit, and the result has been that the demand for a farthing an hour more, a Saturday half-holiday, and some other minor matters, were conceded, and the men have resumed work in the best possible spirit.

In reference to the building trades, we note that Mr. George Potter, whose name is so familiar in connection with the London association, has been presented with a purse containing 300 sovereigns. Mr. White, M.P., presided, and Mr. Maley, M.P., and Mr. Alderman Lusk, M.P., were among the contributors.

A very determined effort in favour of the nine hours movement has been made among the men employed at the York works of the North-Eastern Railway Company. More than 900 of the men memorialised the company without effect, and now the whole body of workmen have resolved to work no longer than fifty-four hours a week. A large number of the permanent way men are already out on strike, and it is thought the movement will extend to other parts of the line.

A conference of delegates representing the journeymen tailors of all parts of the country, has been sitting at Manchester. The most important determination yet aimed at is that all the tailors' societies in the country shall be amalgated, and a code of rules agreed upon.

Nottingham has now a cheap and good working men's dining-hall, opened on the 14th inst. by Mr. Ball, the mayor. 300 persons can dine at one time, and the Glasgow scale of prices has been adopted. The more of such halls the better for the man who wants a good dinner, and who is necessarily compelled to limit himself to a very moderate price. The abominable fourpenny plate and penn'orth of pudding of the cheap cookshops have reigned too long.

Messrs. Samuel Lees and Son, cotton-spinners, of Lees, have been fined £5 at the Ashton-under-Lyne County Sessions, for allowing five young women to work after hours.

A meeting of the guarantors of the Yorkshire Fine Art and Industrial Exhibition has been held at York, the lord mayor presiding. The exhibition will open on the 24th of July, and remain open until the end of September. It is to be hoped that the character of an industrial Exhibition will be better preserved than in some others of the class.

We see that some of the working men exhibitors at Guildhall have held a meeting to protest against the perversion of the objects of the City Exhibition by permitting firms to exhibit.

Co-operative Intelligence.

The Equitable Pioneers' New Stores.—The committee of the Rochdale Equitable Pioneers Society (Limited) have accepted the tender of Messrs. Harrison and Birch, for the erection of their new premises, situate in Toad Lane and St. Mary's Gate. The premises consist of three shops upon the ground floor, with storerooms in the basement storey. The second storey will contain a showroom for drapery, storeroom for grocery, and large, well-lighted offices. The third storey will contain a library-room of an area of 150 superficial square yards, a well-lighted news-room containing 170 superficial square yards of area; also two committee-rooms and a waiting-room. The fourth storey will be suitable for a meeting-room, and capable of seating 1,500 persons. The fronts of the first storey will be built entirely of Ashlar stone polished, forming pilasters betwixt each window and door, and each stone will contain a raised moulded panel upon the face and returns; each pilaster having a moulded base, and caps with frieze and moulded cornice over all the shop doors and windows. The exterior of the first storey is in the Gothic style of architecture, having neat moulded string and springing courses, and columns with moulded bases and carved capitals to each window, with moulded and arched heads cuspated, and all the intermediate space filled in with pitched-faced pierpoint walling; finishing with moulded neck mould and cornice, except over the circular part opposite the junction of St. Mary's Gate and Toad Lane, and there is a panelled gable containing the initials of the society, the year when it was established, and the date of the intended erection. Surmounted upon the top of the same is a beehive, supported upon each side with a cornucopia emblematic of industry and its results. The total height of the building, from the footpath to the top of the stone cornice, is twenty-two yards. Mr. James Cheetham is the architect. The building is intended to be completed in twelve months from the signing of the contract.

Welford, Northamptonshire.—On Thursday evening, March 8th, the fifteenth general quarterly meeting of the members of the Industrial and Provident Society (Limited), established in the village, was held in Mr. Garlick's school-room, kindly lent for the occasion. Upwards of forty members were present; Mr. John Wilson, the treasurer, in the chair. From the financial statement and balance-sheet laid before the meeting by the secretary, and unanimously received and adopted, we learn that the sale of goods at the store for the thirteen weeks ending February 21st, amounted to £461 (upwards of £35 weekly); of this sum, £417 13s. 2d. was laid out by members, and £43 6s. 10d. by non-members. The net profits, after payment of all expenses of management, rent, &c., were £39 8s. 0½d., from which a bonus of 1s. 9d. in the pound on members' purchases was declared and paid, amounting in the aggregate to £35 6s. 6d., leaving a balance of £4 1s. 6½d. carried forward toward the current quarter's account. The society numbers seventy members, with a subscribed capital of £214 19s. 10½d. A unanimous vote of thanks to Mr. Garlick for the use of his room closed the business of the meeting.

Friends of Labour.—The officers and friends of the Chelsea Friends of Labour Loan Association celebrated, on Tuesday, the 13th inst., their seventh annual meeting by a dinner at the "Commercial Hotel," King's Road, Chelsea. Mr. J. P. James, the founder of the society, occupied the chair, and Mr. Riley, of Waller's, builders, the vice-chair. Mr. C. E. Ruffy, the secretary, read the report of the operations of the institution since its commencement some seven years ago. From the report alluded to we find that they began with twenty-four members and a quarterly income of £7 14s. 7d.; expenditure, £1 6s. 10d. Now they have 186 members, and a quarterly income of £511 2s. 7¼d., with advance to members and others during the same period of £438 7s. 5½d. The society had advanced in loans from its birth to the end of the present financial year, the sum of £4,590. This was done at the small rate of 5 per cent.; the secretary wisely adding that such great results from small beginnings showed the value of Co-operation in money matters, as well as in grocery or merchandise. The evening's entertainment was enlivened by songs.

Dalton Equitable Industrial Co-operative Society (Limited), Dalton-in-Furness.—This society was established in 1861 by a few poor miners, who persevered against all obstacles triumphantly. All the shopkeepers in the town combined for its overthrow, and even issued tin checks similar to those given by the society on purchases, and promised to pay a dividend of 1s. in the pound to their monthly customers, at the same time declaring the society's dividend to be false, and stating that when contributions ceased the dividend would cease at the same time. Some of the leading men in the town handled the reports severely, and pronounced Co-operation to be a bubble that would soon burst. On Saturday, 17th February, the society held its fifth annual tea-meeting, at which over 200 sat down to a substantial meal. After the tables were cleared the large room was crowded to hear a lecture by J. C. Furn, of Eccles, near Manchester, on Co-operation.

General Information.

CLUBS AND INSTITUTES.

Working Men's Club and Institute Union.—Notice.—The council beg to give notice to the committees and secretaries of metropolitan working men's clubs, that the next monthly tea-meeting will be held at their office as usual, 150, Strand, on Wednesday, the 28th instant, when they will be glad to see any representatives either of London or country clubs. Tea at seven o'clock. A card of invitation is being prepared, which will be forwarded to the secretary of each metropolitan club, and which (should neither himself nor any member of his committee be able to use it) he can hand to some other member of the club who may like to attend the tea-meeting. It is to be returned to the secretary of the club after each meeting, if not used by himself.

The Essex Road Working Men's Club, Islington.—The Rev. H. Solly gave a very interesting entertainment to the members of this club, on the evening of Thursday, the 15th instant, upon "The Hand, the Hoof, and the Wing," illustrating it with diagrams and some (bony) specimens of, among others, a horse's leg and a human arm. The beautiful harmony of creation was most minutely but yet clearly demonstrated by the wonderful agreement there is between the formation of the members of a whale, seal, or dolphin, and that even of an elephant's leg, the wing of a bat, and the human hand. The bone in the fin was answered by a bone in the leg, and the bones of a horse's fore-leg were traced in the arm of a man. The hoof was shown to exist in a man in the shape of his nails, and these again were transformed into feathers in a bird. The hand was one of the great features of superiority which distinguished him from the rest of creation. The monkey had something like it, and so had the sloth, but neither of these possessed such adaptability as the thumb gave to the human hand. The hough joint of the horse's hind-leg does not answer to the knee, but to the heel of a man. The learned gentleman wound up by showing how any man, without his moral, intellectual, and spiritual faculties, and the culture of them, was exactly like an animal of simple bone and flesh, and made an earnest exhortation to the members to keep up that excellent repute which their club had gained. We may say, among the many comforts and advantages it possesses, not the least is a French class, at which any member can learn that language of a very efficient master, M. Louis Spanier, for the trifling sum of 1s. a quarter. The evening was divided into two parts, by a reading, given by Mr. G. Kimber, of "Samson's Soliloquy on his Blindness," from Milton. We understand that a discussion on the subject of "Jealousy and Matrimony" is going to be brought forward on the 6th April, and the question of the "Reform Bill" on the 10th.

Bradford Working Men's Club.—On the 12th instant, at a discussion meeting connected with this institution, Mr. James Hanson read a paper on "Political Economy—What is it, and would its study be practically useful to Working Men?" The chair was occupied by Dr. Bridges. After the reading of the paper, several persons addressed the meeting on different points brought forward by the essay.

Horton Lane Mutual Improvement Society.—The seventh public lecture of a course, delivered under the auspices of this society, was given by Dr. Parkinson, on Monday evening, in the Horton Lane Lecture Hall; the Rev. Dr. Campbell in the chair. The subject of the lecture was, "An Hour on Chemistry," with experiments. The attendance was pretty numerous. Dr. Parkinson, after being introduced by the chairman, commenced by remarking that, in the short space of time he had that evening, it would be an impossibility to give a connected idea of the science of chemistry; but he would give an outline of a few elementary principles, illustrated with experiments, familiar to most of his auditors, and make explanations as he went on. Dr. Parkinson next explained and experimented upon the force of chemical affinity in substances which mutually produced a strong attraction, but until contact was made between them the affinity could not work. He also showed the changes produced in various substances as the result of elective affinity. The separation of a simple element from its compound was then shown in the case of silver, which was taken from a liquid compound. The elements of substances were the building-stones in the chemical edifice. He noticed the element in oxygen, constituting as it did so large a portion of substances, but not as a gaseous body, except in the atmosphere, where it existed in its elementary nature. The lecturer explained the different degrees of heat as simple combustible substances and as compounds, and also the effect of solid matter intensely heated. The lecture and experiments were most pleasing and instructive.

Establishment of a Working Man's Club at Ilkeston (Derbyshire).—A meeting has been held in the Boys' National School-room, Ilkeston, for the purpose of considering the propriety of establishing a Working Man's Club at Ilkeston. The chair was taken by the vicar, the Rev. James Horsburgh, and several ministers of other denominations were present; there was also a large attendance of working men. It was unanimously resolved, "That a Working Man's Club be

immediately commenced, and that every member use his utmost endeavour to promote the success of the same." At the close of the meeting several working men paid their subscriptions, and were enrolled as members.

York Working Men's Club.—On the 12th inst. a very pleasant and enjoyable tea party was held in the large room of the above club. The room in question is used for the Wednesday evening (weekly) concerts in connection with the club, and also for lectures, tea parties, &c., promoted for the purpose of aiding the club funds. To make it as neat and attractive as possible, it has undergone a thorough renovation and decoration at the hands of Mr. Masser, of York, artist. It now looks quite beautiful, and was the admiration of all those who were assembled at the tea party. The tea was a very excellent one, and was provided by the steward and stewardess of the club, Mr. and Mrs. Dodsworth. The room was well filled with a respectable company, who were presided over by Mr. R. Mosley, who expressed himself delighted to meet so large and happy an assemblage. He dilated upon the benefits of such social gatherings, and suggested that there was no reason why they should not be held at least every quarter.

STRIKES.

The whole of the labourers belonging to the Board of Works, and Mr. Kirk's men employed by contract in the Royal Arsenal at Woolwich, have struck work on the one o'clock Saturday half-holiday movement. They have presented a memorial, which implies a desire to be paid by the hour, and only for the time employed. Some of the Government men have been reinstated on their own terms. There are still about 300 men who have not been restored.

WAGES AND SHORT TIME.

The Short Time Movement.—A meeting of the persons connected with the baking trade has been held at St. James's Hall, Piccadilly, for the purpose of effecting a reduction in the hours of labour of the bakers in the metropolis, and an increase of wages. Mr. T. Thompson presided, and congratulated the meeting on the spirit that was evinced by the trade as exhibited by the attendance of so large an assembly on a night when the members of that trade were worn out by the toil of the week. He vindicated the introduction of the question of wages into the subject of the objects submitted to the meeting, because it was really practical. Food had increased in price, and it was necessary that there should be an increase of wages. Some of the employers had met the requirements of the working body of bakers, who were journeymen, but something else was required. Night labour in the baking trade should be abolished as unnatural, unnecessary, and unjust. Work from five o'clock in the morning until five o'clock in the evening was quite sufficient labour for persons employed in an unhealthy occupation, and one that exhausted physical strength. Mr. Taylor and other persons addressed the meeting, and a series of resolutions in conformity with its objects were unanimously adopted.

Conviction for Leaving Work without Notice.—On Saturday, the 10th instant, the Stockton magistrates held a special sitting, to hear the cases against more of Messrs. Pearce and Lockwood's men, operative iron shipbuilders, who were summoned before the Bench for breach of contract. There were four cases, and the first gone into was that of William Atkinson and Charles Rutter, iron ship shell-riveters. The defendants had entered into contracts to do part of the shell plating of two ships in Pearce and Lockwood's yard, but on the 16th ult., with the general body of the men, they left their work. The magistrate found them guilty, and sentenced them to one month's imprisonment with hard labour. Mr. Stevenson asked for a case for the Court of Queen's Bench. The case was granted, the defendants being admitted to bail, themselves in £50, and another surety of £50. The next case was against Morris Welch and Robert Crowther, shell-riveters, and was precisely similar in its nature. Each defendant was sentenced to a month's imprisonment, but admitted to bail. The men employed at the railway works at Darlington have, in conjunction with men at other places, made representations to their employers desiring them to remit one hour per day from their labour. A meeting of the men for receiving a deputation from the workmen on strike was recently held at Darlington, when it was agreed to support the strike. A collection was made for the men on strike.

The Wages of Factory Operatives.—The manufacturers and cotton-spinners of Preston have just had a general meeting to consider a memorial sent in to them by the operative spinner and self-actor minders for an advance of wages and the re-construction of their list of prices; and after some discussion it was agreed to increase the rate by 7½ per cent. until the list has been duly revised. Many firms in the town had increased the wages of their operatives voluntarily, and before any application at all was made to them. The operatives of Preston belonging to the Power-loom Weavers' Association, lately applied for an increase of 10 per cent. Their employers have expressed their willingness to give them 5 per cent., but this they refused; and they have appointed deputations to wait upon each employer and ask for an increase of 10 per cent., in addition to the 5 per cent. offered. They have also decided to establish an emigration society in connection with their association.

Correspondence.

*** *We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE PROPOSED EDUCATIONAL FRANCHISE.

To the Editor of the Working Man.

Sir,—I have perused, with great interest, your editorial appeal to working men to ascertain and report the views entertained by their own class upon the Bill introduced into the House of Commons by Mr. Clay. You tell us, "It will fare ill with working class interests in the future—it will discourage members of Parliament, anxious to promote the advancement of the people—if no attention should be given and no trouble taken to throw light upon a measure introduced with friendly intent towards them."

Now, sir, I must admit it seems to me very strange that such old politicians as those who have introduced the Bill really anticipate an immediate and spontaneous approval of a measure which, although designed "with friend's intent," has been framed without the knowledge of the great bulk of the working community, and which there has been neither time nor opportunity to discuss. Those honourable gentlemen, whose good intentions I fully appreciate, must surely know that to thoroughly rouse public opinion in favour of great questions is a work of time; it is an arduous work, demanding incessant, unremitting labour. That labour invariably falling upon the *few*, who, in their zeal for what they believe to be a good cause, manfully contend with ignorance, obstinacy, scorn, and misrepresentation. No great question was ever yet carried without there being such workers, and my own view is, that without the persistent exertions of men who will never say die, no great measures can succeed. It is not simply saying to the people, "Here is a plan designed for your advantage," that will induce them to regard it with favour. Their prejudices must be combated, and their suspicions allayed by appeals, repeated again, and again, *and again*, if needs be; and if ever there was a case in which prejudices would have to be combated, it strikes me very forcibly the advocacy of this Educational franchise is one.

I know something of the views of my own class. Independently of a past connection with working men's organisations, my daily avocations constantly bring me into contact with a very wide circle of men in various trades. The old leaven of Chartism is not yet dead. The mass of those working men who are interested in political matters go in for manhood suffrage. That is their ideal. It is true that, owing, most probably, to the influence of Mr. Bright and others, there is an apparent inclination to accept a mere lowering of the present qualification for the franchise, but only as a step. Nineteen out of twenty mean manhood suffrage ultimately.

For myself, I willingly admit that manhood suffrage has no charms for me, with my present knowledge of what working men really are. Do not think that I desire to be a detractor of my own class. Assuredly not. But it would be wicked folly to claim for them the possession of those virtues and that knowledge which will make them brave and incorruptible citizens. I say knowledge, for I hesitate to approve—nay, more, I protest against—any system that confers duties upon men who are utterly ignorant of the obligations and responsibilities of such duties. Now, in my view, the exercise of the elective franchise is a solemn and responsible duty, and can only be rightly exercised by those having a knowledge of those responsibilities. But how few, even of the middle classes, to say nothing of working men, have a clear idea of the duties of electors and elected! Is there one in ten? I doubt it. With such ignorance, no wonder that the screws in the political machine are continually getting loose, and that there is a perpetual tinkering and botching going on. Will the admission of more of this ignorance, to help to work the machine, tend to render its working more smooth and satisfactory? By no means. Intelligence, not numbers, is required. Hence, I regard the Bill of Mr. Clay as one of the grandest steps towards securing a perfect government that has yet been taken.

You will, however, observe that with such views I am prepared to go further than that honourable gentleman. In truth, I do not think his Bill, strictly speaking, is an educational one. Reading and writing are not education. They are only means. I would restrict the extension of the franchise to those who were able to state what are the duties, both of electors and the elected. I know there would be difficulties at the outset, but I believe they are not insurmountable; at any rate, I, as an individual, should advocate such a high standard, believing 'tis wise to look high enough.

The *principle*, then, of Mr. Clay's Bill meets my cordial approval. Many of the details are objectionable, but it ought to be supported, nevertheless. I have no faith in any general move in its favour, in the absence of an earnest thorough-going propaganda. "A little leaven leavens the whole." We want a little leaven. The subject is new, it is novel, it is opposed to the political teaching the working classes have received; hence I see the difficulties of the work.

I have written thus freely, not in view of publication, but that you might convey to those who, I see, have solicited your co-operation, what are the views of one who believes he has some knowledge of the opinions and habits of his own class. As far as my avocations will permit, I shall be happy to co-operate with any of my fellow workers in London in evoking sympathy in favour of the Bill. But the first step is the organisation of a *propaganda*.

Apologising for trespassing so far on your time, I am, yours respectfully, W. Glazier.

2, *Mildmay Street, Islington, N., March* 12*th*, 1866.

To the Editor of the Working Man.

Sir,—If you will kindly grant me a small space in your valuable paper, I should like to make a few of my opinions public upon the great question of Parliamentary Reform. Myself being a working man, working for a weekly wage, ten hours per day, you cannot expect very valuable political opinions from me.

You ask, Would the working man trouble himself to go through the formula of examination in order to possess a vote, as would be required should Mr. Clay's Bill pass? In my humble opinion I beg to say, No, he would not; and allow me to ask, Why should he?

Why, indeed, should I, after having done my ten hours' labour, be compelled to go through another school drill in order to get that which I am at present entitled to, when at the same there are many who have that privilege whom I be bound could not write the word you put forth as an example in your last week's impression—many of the members of our boards of guardians, to wit.

I, sir, want a vote. I pay £20 per year rent, and therefore am qualified, or ought to be; but here one of the blunders of legislation occurs: the houses are what is termed farmed, so that I pay a weekly rental, taxes included, by which process I am deprived of a voice in governing those who govern me.

There appears to me to be a great fear in the middle classes of society that if the working classes were enfranchised, they—the middle classes—would be swamped at the hustings. Now, sir, as it is certain we have a middle class, we must of necessity have a first and third class. The first and second are well represented at present, for they have it all to themselves, and the third you yourself own are not represented at all. I consider the franchise quite low enough at present. I am not an advocate for very adventurous measures, especially when such great stakes are to be played for. I think the present would suffice until the time arrived for another Reform Bill, which is not very far in the future, let this one be framed in whatever form it may. Let the qualification rest on the rental actually paid, and have nothing to do with taxes or tithes whatever; this would also revolutionise our present, in many instances, corrupt parochial boards. For, if the franchise be lowered to £2, how shall I, even then, have a right to vote if I do not pay the taxes direct? Then, again, the upper and middle classes have their representatives; why should not the workman have his also? elected by himself, entirely separate from the others, and yet working together in the one House for the good of the whole community: by this simple means the workman would be fairly represented, with no fear of the middle classes being swamped, or the unnecessary imposition on the workman of again reading himself up in school books or lowering the franchise. If, as Mr. Clay proposes, the unenfranchised must be examined, surely many of those who already have the privilege require to be examined, and taught into the bargain. I think his proposition is far from fair, and rather degrading to some of our feelings. All honour to his good intentions towards us for all that! I can scarcely think the present members of the House of Commons—not our members, bear in mind, for we have none—can be aware of the evils arising from the present system of allowing the house owner to place a whole street under one parochial rating, and thus deprive the householder from a voice in the affairs of his home and country, under the assumption that he gets his house at a lower rental.

Trusting that I may see these few remarks in your next week's impression, I remain, dear Sir, yours very respectfully, Richard Gale.

16, *Margaret Place, Margaret Street, Hackney Fields, N.E., March* 12*th*, 1866.

To the Editor of the Working Man.

Sir,—I have asked the members of the Whitechurch Working Men's Club their opinion of Mr. Clay's Bill for the extension of the franchise, and they think it much better than a brick and mortar franchise; but think an examination in English constitutional history, political economy, and general knowledge, better than the writing and arithmetic test. They think this, because they know many working men who are fair scholars, but who are deficient in general knowledge. They also know some who are not well educated who possess superior intelligence; but they think an extension of the franchise without voting by ballot would be nearly worthless. In fact, they would not apply for a certificate unless they could vote freely and secretly, feeling sure that without the ballot they would be obliged to vote as their masters should wish them.—I am, Sir, yours respectfully,

John Smith, Secretary.

Whitechurch, near Blandford, March 15*th*, 1866.

To the Editor of the Working Man.

Sir,—After reading your article of the 10th, I understand it as an appeal to us working men to show the members of Parliament what we think of Mr. Clay's Bill, and further, whether we would take the trouble to attain a sufficient knowledge to qualify ourselves for the franchise. Well, sir, I have much pleasure in stating that I, with many more in the town I reside in, would feel more satisfied if we could record our votes in a way more becoming to us as working men, than through mere bricks and mortar. We feel ashamed of our present privileges. I have two: first, by birth; second, just because I can pay £10 rent and taxes, which, according to the present state of things, makes me, in the eyes of the law, wiser than my fellow-workmen.

Sir, we should feel it a delight to set to work to qualify ourselves for Mr. Clay's franchise, or any other on an intellectual basis, which is, we think, the best way our Legislative gentlemen can stop fools from holding the rights of wise men.

Trusting the Bill—the one we working men desire—will

meet with success, both in and out of the House of Commons,—I remain, Sir, yours obediently,

Shrewsbury, March 14th, 1866. A Shoemaker.

P.S.—We should be glad to have some idea of what would be required at the examination.

To the Editor of the Working Man.

Sir,—It gives me great pleasure to see that the columns of your valuable paper are thrown open for the expression of working men's opinions of the Bill lately introduced to the House by the member for Hull.

For a long time I have been firmly convinced that a franchise based upon intelligence would not only be a safe measure, but one best calculated to raise the social, moral, and intellectual condition of the people. Such a measure is Mr. Clay's, and I do hope that it will receive the sanction of the Legislature. The lowness of the registration fee is a grand feature in Mr. Clay's Bill, because, should it become law, there will be no excuse for any one surrendering his liberty into the hands of the electioneering agent. That Mr. Clay's Bill would be allowed to lie upon the shelf is not likely. We have too long and too ardently desired enfranchisement for such a thing to take place. Work and trouble are not usually feared by the working men of England, nor will anything, in reason, be feared or neglected that leads to citizenship.

Let the Legislature pass this Bill, and depend upon it in a few years the office of examiner will be anything but a sinecure.—I am, Sir, yours truly, A Son of Crispin.

Shrewsbury, March 14th, 1866.

To the Editor of the Working Man.

Sir,—As you solicit the opinion of working men upon Mr. Clay's Franchise of Intelligence Bill, I beg leave to offer my opinion. Before doing so, I wish to give my opinion of your publication, the Working Man, which I have read attentively from the first. I wish it every success, and hope it will be widely circulated, believing that those who read it will be greatly benefited thereby, as has been my case already. But to your question, What do working men think of the Bill? I quite agree with it, and thought it so likely to become law, that I advised my eldest son (who is nearly nineteen) to practise his writing and arithmetic, as he, like many youths learning a trade, does not practise what he learnt at school. This, also, being my case, I have had to learn since I was twenty-one years of age. I think such a Bill would induce parents to educate their children more, as well as educate themselves. I think it very reasonable that every person should know the first four rules of arithmetic, and dictation, before they are qualified to vote for a member of parliament. If it should compel every one to learn as much as a boy of eight or ten knows, or ought to know, so much the better. Next to manhood suffrage, I think it is as much as can be expected; and I should think that no working man would think it too much trouble to prepare and go through the examinations; if he would, then I should say he did not deserve a vote. I have worked at my trade (tailor) for thirty years, and in some of the largest shops in London, and, from my knowledge of working men, I should think it a very easy task for them to qualify themselves for a vote under Mr. Clay's Intelligence Bill. I am afraid the poor agricultural labourer would fall very short. There was not one out of a dozen that I asked a few months ago that could either read or write, or ever heard the names of Messrs. Cobden and Bright.

Trusting that many working men more able than myself will forward their opinions, so that M.P.'s will have a better opinion of them,—I am, Sir, your obliged reader,

March 12th, 1866. A Working Tailor.

To the Editor of the Working Man.

Mr. Editor,—As a working man, and in accordance with your request, the writer would humbly place a few remarks at your disposal on the various points set forth by you, and on which, no doubt, you will receive a variety of ideas. As regards the Bill introduced by Mr. Clay into the House of Parliament, it would, on the score of intelligence, only admit a very few of the working class, as a majority of them are but indifferently educated. But yet they are well informed, by means of the clubs and the various kinds of means now in use for their improvement; so they are in a fair way of becoming a most exemplary portion of the community.

But I do not see what kind of test would be the standard of their fitness for the franchise, as I have found, in my experience among working men in London during the last forty years, that good mechanics as workmen are sober and industrious, and well acquainted with the work they were employed in, but very dull on everything else. The truth is, good workmen are so intent on mastering their respective trades, and so desirous to excel in them, that, as a rule, they care for nothing else. When I came to London, forty-three years ago, I was very much surprised at the few who could read or write, or do the simple rules of arithmetic. But I trust the times are altered, and the working class improved. About two years back I put an advertisement into the *Clerkenwell News* for contract for painting a house I was doing the carpenter work of, and for which I had about forty applications, and out of this number there were only four that were set forth intelligently, or in any way business-like, and yet all the applicants, in conversation, were quite intelligent.

Another thing I would mention is, that the working men will, as a rule, detest forms and troublesome observances. To be enabled to vote, they will want something in the required form to be very plain and, at the same time, attractive. There are many now who could have a vote, but there is a trouble about it, and they don't understand the way to go about it; and more than this, they want those who do know the way to call on them, and show them how to act, and lead them on to it. I agree with you, that all clubs and societies of intelligent workmen should meet as early as possible and discuss the merits of Mr. Clay's Bill.

Excuse an old working man, who has little time to study.—Yours most respectfully,

A Constant Reader of your Productions.

March 9th, 1866.

To the Editor of the Working Man.

Sir,—In answer to your leading article in the Working Man of the 10th inst., I wish to offer a few remarks on the *Intelligence* principle. My opinion is, that Mr. Clay's Bill *is likely* to lie on the shelf, because it will no doubt lead to universal suffrage; and *that* will not be accepted at present, because it will be too great a change at once—and Englishmen are generally in all matters adverse to violent changes.

Mr. Clay's Bill is a step in the right direction, but rather too long a stride: it wants modifying. Intelligence is power; but it has been observed, that it is not always virtue. There are thousands of men in the United Kingdom who can read and write sufficiently for Mr. Clay, but are men of no stability of character whatever. Men are more or less religious and moral, and also social, as well as intellectual; and the men that are sent to Parliament are sent there to attend to the social, religious, and moral, as well as the intellectual, affairs of the nation; and, as such, are, or ought to be, men of character—men of intelligence, well known for their morality and social virtues; and unless *electors and voters* are men of that stamp themselves, are we likely to continue to have such men sent to Parliament if *intelligence* is the only qualification to send them there?

Suppose Mr. Clay's Bill is modified thus, viz.:—A man to be qualified for a voter should—in addition to the required amount of intelligence—be a member of some Christian community, or a depositor in a post-office or some other savings bank, or a member of a legal benefit society, or have a policy in the Government or some other insurance society, and be of some regular calling or occupation.

Any one reading this may think it too strict, or may doubt the practicability of it; but the plan I would suggest is this—that any man wishing to have a vote should be able to procure a printed form from some parochial officer—this form to be taken home and filled up by him—and in this form he should have to give his name, address, occupation, his employer's name, what Christian community he belongs to, whether a depositor in a savings bank, whether his life is insured, or a member of a benefit society; and the very fact of his being able to fill up the form correctly, would be sufficient evidence of his intelligence—the man's word and the employer's signature should be a guarantee of its truthfulness. The form, thus filled up, should be sent or taken in for consideration, according to the terms of the Act.

Now, something of this kind would not take up any time that a working man could not spare; and, besides that—when he states that he belongs to such-and-such a Christian community, you have evidence of his religion and morality; when he states his occupation, you have evidence of his industry; and when he states that his life is insured, or that he belongs to a benefit society, you have sufficient evidence of his social virtues; and if you have any, or all, of these qualifications in voters, you have the best possible guarantee of their sending men to Parliament who will maintain the character of the country, the welfare of the people, and social and commercial intercourse with all nations. I hope I have not encroached too much on your space; and, in conclusion, accept my well wishes for the success of the Working Man.—Yours, &c.,

J. T. Rhodes.

CO-OPERATIVE EXHIBITIONS.

To the Editor of the Working Man.

Sir,—I have seen in your paper called the Working Man, to which I am happy to say I am a subscriber, several hints on working men's exhibitions, and have watched the dissatisfaction that has arisen from what some call unfair dealing. Now, sir, I am a working man myself, and an exhibitor, besides a medal winner. I wish to refer to your good judgment, if you think a mere honourable mention—without even a word of thanks for his trouble—is a sufficient recognition of the labours of a poor person who has worked night and day to get up the article he exhibits to the best of his abilities. Now, sir, I know that all cannot win prizes; but when I hear of so much money taken and so little money distributed, I cannot wonder at the dissatisfaction arising. I think Mr. Gladstone was perfectly right when he said, "Exhibitions must be self-supporting." Now, sir, what would you think of ourselves raising a guarantee fund of our own? Suppose we had an exhibition on a middle scale; say we collect £300 as a guarantee fund, and divide the money we take at the doors among the members. By collecting a shilling per week for three years I think we should raise £2,200, with which we might raise a museum of our own. Now, Mr. Editor, if you can in any way help me by your judgment, I should feel truly grateful for the same.—I beg to remain, yours most obediently,

Peckham, March 5th, 1866. A Working Man.

[We certainly can see no reason why the Co-operative system should not be applied in the manner proposed, supposing circumstances to be favourable. But an industrial exhibition depends for its success upon several matters which call for serious consideration.]

A PAINFUL COMPLAINT.

To the Editor of the Working Man.

Sir,—In your impression of this week the Rev. H. Solly refers to the Leeds Working Men's Institute, mentioning it as an instance of the good that is done, and the money that is spent by Mr. Darnton Lupton. In my opinion too much praise cannot be given to Mr. Lupton. It so happens that I spend most of my dinner hours there, and have spent a little time at similar institutions in London and other places, but have not met with one where the advantages are so numerous and excellent for the money charged for membership (one penny per week). There is only one thing in connection with it that I regret, and it grieves me much every time I enter the reading-room, and that is a placard offering a reward of £5 for information that will lead to the conviction of persons who have stolen books from the library. Many a time, before the above notice was posted, have I felt a pang at seeing a long list of books removed, with a courteous request that the same might be returned by the parties who had taken them away. I don't think that we working men, as a class, and in proportion to our numbers, are any more dishonest than the classes above us. But is it not deplorable, sir, that, after gentlemen have devoted their time and money to the object of making the scant leisure of working men both profitable and agreeable, it should be found there are some amongst us who are so vile and mean? I am told that the fraudulent abstraction of books, newspapers, magazines, &c., is a growing evil at working men's clubs and institutes, or I should not have written to you on the subject; but, not having seen it noticed before, I am anxious it should be made known with a view that, if possible, a remedy may be provided. I remember one day sitting in the Leeds Institute when the hall-keeper came to search for the *Leeds Times*; it was gone, and he said the same had been the case several weeks in succession. I would suggest that no person should be admitted as a member of a club or institute who could not produce a reference or character on being required to do so by the hall-keeper. It is no use blinking the matter, the practice of indiscriminate admission is only offering almost unlimited facilities for petty larceny, and will end by some one being sent to gaol, which will be ten thousand times worse than if a working man's club or institute had never been opened.—I am, dear Sir, yours truly,

Leeds, March 9th, 1866. C. W.

THE CAMDEN TOWN WORKING MEN'S COLLEGE AND INSTITUTE.

Sir,—I am much obliged to your correspondent for his analysis of the committee of this capital society, showing eighteen out of twenty-four to be *bonâ fide* working men, which is a highly satisfactory result. But my remarks did not apply to the committee. I was referring to the *members of the club itself* when I used the word "represented." An analysis of their occupations would be both very interesting and useful. I should be truly thankful to be able to state, on statistical authority, that at all events at present there is no ground for the apprehension I had been led to entertain; and, considering the position the club holds in general esteem, and the extent to which, therefore, it is quoted and offered as an example, the time would be well spent in making the requisite inquiries, if any friend could kindly spare it for the purpose.—Yours faithfully,

Henry Solly.

TO CORRESPONDENTS.

A Young Cabinet Maker.—The information you require cannot be communicated by description. You must obtain practical instruction. As for the books, your best plan would be to consult the Art Library at South Kensington.

Rayner.—You had better study Dr. Arnott's "Elements of Natural Philosophy."

James Coleman.—Messrs. D'Almaine, of Soho Square, published a descriptive pamphlet on the construction of the harmonium.

John Bennett can obtain the brass reeds for concertinas, &c., of the manufacturers. It is impossible for an amateur to make them without all the requisite mechanical appliances.

X. Y. Z.—Letters cannot possibly be replied to in the number immediately following their receipt.

W. D.—Bees-wax is the best thing for filling up the grain of the wood. It may be mixed with a little turpentine, or poured on in a melted state and rubbed smooth while soft, and afterwards when hard.

W. B. L.—You are mistaken. The book was published complete in 1846. Hannett's Treatise was published in 1843, and is better suited to your purpose.

T. M.—The "Report of the Social Science Association upon Trades' Unions and Strikes," and the articles upon "Co-operative Associations in Lancashire and Yorkshire," contained in the "Companion to the British Almanac" for 1862, will furnish the information required by you.

Isle of Wight.—We really cannot show our correspondent the way to teach before he has himself learned. He had better study hard for himself, and master the rudiments of music. Attendance at a class taught on Hullah's system, if it be practicable, would facilitate his advance.

P. C.—A young man in good health, industrious, and acquainted with agricultural pursuits, ought to do well in the western States of America, or Western Canada. But he must be prepared to work hard and to fare hard at first, cheered by the prospect of ultimate success. See "Cassell's Hand-book for Emigrants."

Money Prizes.—There are ten prizes of £5 each and ten of £3 each offered by Messrs. Cassell, Petter, and Galpin, to be competed for by working men, their wives, sisters, or daughters. Full particulars are given in No. 10 of the Working Man.

H. H.—Dissolve 2 lb. of silver in 6 lb. of nitric acid, and evaporate by the heat of a spirit-lamp until the nitrate of silver becomes fused, then dissolve it in 25 lb. of water. On the other hand, dissolve 2 lb. of cyanide of potassium in 10 lb. of water. This solution, added a little at a time to the silver solution, throws down a precipitate of cyanide of silver; this precipitate is washed in pure water and dissolved in 2 lb. of cyanide of potassium; then add sufficient water to make up 100 lb.

THE LONDON CENTRAL

Painters' Hall Company,

LIMITED.

Incorporated under "The Companies' Act, 1862," whereby the Liability of each Shareholder is limited to the amount of his Shares; and no Shareholder will be allowed to take more than Ten Shares.

CAPITAL, £2,000, IN 2,000 SHARES OF £1 EACH,

WITH POWER OF INCREASE.

Deposit on Application, 2s. 6d. per Share, and 2s. 6d. on Allotment. No Call will exceed 2s. 6d. per Share, or be made at less intervals than One Month.

Directors (pro tem.).

FREDERICK EMANS SHEARMAN.
GEORGE STONE.
WILLIAM PRIME.
WILLIAM GAHAGAN.
JAMES BROWNLEE.
WILLIAM MARKS.
JOHN JOSEPH PADDICK.
WILLIAM THORNE.
HENRY STOCKBRIDGE.
JOHN SWINTON ASHHURST.
WILLIAM STAINSBY.

Bankers.

BIRKBECK DEPOSIT BANK, 29, Southampton Buildings, Chancery Lane.

Solicitor.

Secretary (pro tem.).

WILLIAM HENRY TOFTS.

Temporary Office.

29, UPPER JOHN STREET, FITZROY SQUARE.

OFFICE HOURS: 7 to 9 P.M.; Saturdays, 3 to 5 P.M.

This Company is established for the purpose of Leasing or Building a Painters' Trades Hall, Library, and Reading Room, for the use of Trade, Benefit, and other Societies.

PROSPECTUS.

Seeing the great evil of having our meetings at public houses, and the necessity of improving our condition, both morally and socially—conscious of the difficulties and failures that have attended all former efforts in this direction—we have taken a broader basis as the foundation of our work, and a fixed determination that no effort shall be wanting on our part to ensure its success.

To remove the existing evils of public house meetings, the London Central Painters' Society members have formed a Company, on the principle of limited liability, for the purpose of leasing or building a hall in a central part of London, such building to consist of a hall capable of holding 1,000 persons seated, library, and reading room, with large rooms for the use of various societies to hold their meetings in, with committee and refreshment rooms attached, lavatories, &c.

The calls are made easy, to enable working men to take up shares. All are invited to co-operate in the scheme; and, to prevent monopoly, no shareholder will be allowed more than ten shares.

The promoters of the Company are, on allotment, to receive the money outlaid for the promotion of the Company, and no further remuneration until 10 per cent. has been divided amongst the shareholders; any profit over and above this rate to be divided amongst the shareholders and promoters, in proportion of two-thirds to the shareholders and one-third to the promoters.

For the many benefits it will confer upon them, it behoves the working classes generally to devote their entire energy to its advancement, and take every opportunity of making it known and appreciated; as we advance in years, numbers, and intelligence, great and numerous will be the advantages which those who come after us may acquire through our earlier exertions.

The promoters, in bringing this scheme before the working classes, feel the greatest confidence that, if supported by those it is intended to benefit, it will prove one of the greatest advancements of the age, both morally, socially, and financially, and will ultimately produce a large dividend to the shareholders.

FORM OF APPLICATION FOR SHARES.

To be retained by the Bankers of the Company.

No.

To the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED.

GENTLEMEN,—I have paid to your credit at your Bankers the sum of £ , being a deposit of 2s. 6d. per share on shares in the above Company in respect of such shares, or in respect of any less number you may allot me, and I agree to pay the further sum of 2s. 6d. on allotment thereof, and the instalments according to the terms of the Prospectus.

Name in full,

Residence,

Profession or Trade,

Dated this day of 186

If it is not convenient to make the deposit with the Bankers of the Company, the form may be sent by post to the Office of the Company, accompanied by a Crossed Cheque or Post Office Order for amount of the deposit, which will be paid into the Company's Bankers, and the Receipt returned by post to the Applicant.

BANKERS' RECEIPT.

To be signed by the Bankers and returned to the Applicant.

Received this day of 186 , of for the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED, the Sum of on account of an application for an allotment of Shares in the undertaking.

£ : : [4

The Suburban Village and

GENERAL DWELLINGS COMPANY (Limited).

Incorporated under the Companies' Act, 1862, whereby the liability of each shareholder is limited to the amount of his shares.

Capital, One Million, in 100,000 Shares of £10 each.
With power to increase.

£1 deposit to be paid on application, and £1 on allotment.
No future calls to exceed £1, nor to be made at less intervals than three months.
Where no allotment is made the deposits will be returned in full. First issue, £200,000.

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Professor Fawcett, M.P.
George Cruikshank, Esq.

Chairman.

John Everitt, Esq., Allhallow Chambers, Lombard St., E.C.

Directors.

Jabez Burns, D.D., 17, Porteus Road, Paddington.
William Hardwicke, Esq., M.D. (Deputy Coroner for Central Middlesex), 70, Mornington Road.
C. Jones, Esq., 10, Grafton Street, St. James's.
Brownlow Poulter, Esq., Blackheath.
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Robert White, Esq., Sydenham.
H. N. Barnett, Esq., 7, Yonge Park, N.
J. Edward Pauter, Esq., Lee Park, Kent.
Edward Beales, Esq., 47, York Street, Portman Square, W.
E. Moore, Esq., 2, Aldridge Villas, Westbourne Park, W.
Edward Vigers, Esq., Tavistock Lodge, Upper Westbourne Park, W.

Bankers.

The Imperial Bank, Lothbury, and Victoria St., Westminster.
Messrs. Barclay, Bevan, Tritton, Twells, and Co., Lombard Street, E.C.

Standing Counsel.

Frederick Prideaux, Esq., 3, New Square, Lincoln's Inn.

Solicitor.

John J. J. Sadlow, Esq., 4, Westminster Chambers, Victoria Street, S.W.

Architects.

Messrs. Banks and Barry, 1, Westminster Chambers, Victoria Street, S.W.

Surveyors.

Messrs. Leifchild and Cheffins, 62, Moorgate Street, E.C.

Auditor.

Charles Brown, Esq., Basinghall Street.

Secretary.

William Jones, Esq.

Temporary Offices: 4, Queen St. Place, Cannon St. West, E.C.

ABRIDGED PROSPECTUS.

How to provide healthy and comfortable dwellings for the population of London is the most momentous and the most pressing social problem of our time. From the natural growth of population, new dwelling-house accommodation will, during the next ten years, be required for 600,000 people. During last year alone, according to the statement of the Earl of Shaftesbury, 3,500 houses were so destroyed, dispossessing 20,000 people of their homes. Bills for authorising metropolitan improvement now await the judgment of the Legislature, which will, if passed into law, involve the demolition of 16,000 houses and the dispossession of their homes of not less than 100,000 people.

The condition of very much of the existing house property (chiefly that occupied by the labouring class) within the metropolitan district properly so called, is so bad, that our sanitary commissioners are seeking authority from the Legislature for the condemnation and destruction of thousands of houses which are nothing better than haunts of misery, nests of pestilence, and fountains of wide-spreading demoralisation.

Here, then, are accumulative evils to remedy, and accumulative necessities to supply. The remedy for those evils, and the supply of those necessities, will be found in the provision, on the most extensive scale and at the most rapid rate possible, of suitable dwelling-house accommodation for all classes of the community.

To take advantage of a field of enterprise thus vast, and to minister to requirements thus urgent, are the general objects for which the Suburban Village and General Dwellings Company (Limited) has been established.

It is now recognised alike by the philanthropist and the statesman that dwellings for even the lower ranks of working men can only be secured in conformity with the established conditions of commercial enterprise. Experience has happily demonstrated that those conditions are perfectly practicable. The middle classes, however, are not less interested in the objects of this company than are working men themselves.

The company, in carrying out the objects contemplated, propose to undertake the following among other special forms of business:—

1. The purchase of estates within reasonable distance of, and having direct railway connection with, London, on which, according to their extent and character, complete suburban villages may be raised, laid out on picturesque plans, with regard to harmonious design, and with due consideration to the means and requirements of various orders of people.

2. The purchase of plots of ground, whether within or beyond the bounds of "London Proper," on which blocks of buildings may, with due attention to sanitary laws, be erected either as homes for households, or as lodging-houses for single men and women.

3. The presentation of opportunities to all classes alike of becoming the purchasers of their own dwellings, by various scales of payment (which have been very carefully prepared) extending, in the form of rent, over a greater or less number of years at the option of the tenant.

The operations of the company are not of a hazardous character. A good substantial dividend, therefore, is within the range of legitimate expectation. Several land and building societies already in existence pay dividends ranging from 12 to 15 per cent. per annum.

As the social exigencies alluded to in this prospectus operate in a greater or less degree in all the large towns of England, the company will be prepared, as favourable opportunities present themselves, to extend its operations to other great centres of industry and population.

Applications for prospectuses and shares may be made to the solicitor, secretary, and bankers of the company.

An estate of upwards of ten acres, situate within three minutes' walk of the Honor Oak Station of the London, Chatham, and Dover Railway, has been secured by the Directors as the site of their first village, on which operations will be commenced with all possible promptitude. [1

Government of South Australia

EMIGRATION DEPARTMENT.

FREE PASSAGES are granted to South Australia, in vessels chartered expressly by H.M. Emigration Commissioners, to PLOUGHMEN, farm servants, miners, masons, bricklayers, wheelwrights, blacksmiths, sawyers, carpenters, gardeners, grooms, collar and harness makers, country shoemakers, &c.

ALSO TO SINGLE FEMALE DOMESTIC SERVANTS.

Further particulars and forms of application may be obtained at the office of the Emigration Agent for the Government of South Australia, 5, Copthall Court, London, E.C. [5

Trades' Unions. By the

Author of "The Working Man's Way in the World." I. Their Objects. II. Strikes, from the Strikers' Point of View. III. General Considerations.—See the *Leisure Hour* for March, price Sixpence.

56, Paternoster Row, and all Booksellers. [3

Happy Homes for Working

MEN, AND HOW TO GET THEM. By the Rev. Dr. BEGG. Price, in paper covers, 1s. 6d.; bound in cloth, 2s. London: Cassell, Petter, and Galpin, Ludgate Hill, E.C. Edinburgh: James Nichol.

John Moseley and Son,

17 and 18, King Street, and 27, Bedford Street, Covent Garden, London, W.C., CUTLERS, GENERAL MERCHANTS, and MANUFACTURERS OF MECHANICAL TOOLS—Saws, Tool Chests, Turning Lathes, Garden Tools, &c., Wholesale, Retail, and for Exportation. Established a Hundred Years. Reduction in the Price of Moseley's Warranted Saws, Genuine Gauged Plates:—

		£	s.	d.	
23-inch Best Half Ripping Saw	...	0	8	0	each.
26 " Hand Saw	...	0	7	6	"
14 " Brass-back Sash Saw...	...	0	8	6	"
14 " Iron-back ditto... ...	...	0	5	6	"

Moseley's Patent Electric Bell's Galvanic Machines for 18s., &c.

Same make, Second Quality (by some called best) of each of the above, 1s. less.

Carriage Free (if to the amount of 40s.) on receipt of Post Office Order, or postage stamps.

N.B.—These Saws are the same make as those that have given such great satisfaction for the last forty years.

NOTICE.—Messrs. MOSELEY and SON beg to announce that, in order to enable Country Workmen and others to obtain their superior Tools and Cutlery, they are now prepared to forward, direct from their Establishments, Parcels to the amount of £5 and upwards, to any part of the Kingdom, Carriage Free. Cash by Cheque or Post Office Order. [5

Walker, Hatter, 49, Crawford

Street, Corner of Seymour Place, Marylebone, London. Hats in all shapes from 3s. 6d. to 18s. each.

The Trade Supplied. [7

BROWN AND POLSON'S

PATENT CORN FLOUR,

Recommended for

CHILDREN'S DIET. [8

E. Bourdon's Patent Gauges.

GIFFARD'S INJECTOR,
FOR FEEDING STEAM BOILERS.
DIAMOND PAINT, FOR IRON AND WOOD WORK.

Particulars and Prices post free on application to

W. T. HENDRY AND CO.,
73, QUEEN STREET, LONDON, E.C. [9

THE WORKING MAN WILL FIND

"Judson's Simple Dyes"

both Useful and Amusing. Any one can use them. Anything can be dyed with them in ten minutes. Price Sixpence per Bottle. Of Chemists at Home and Abroad. [10

Inventors Assisted in Secur-

ing, Carrying Out, and Disposing of their Invention. Apply to B. BROWNE and Co., British and Foreign Patent Office, 48, King William Street, London Bridge. A Pamphlet, gratis, on Cost of Patents, may be had on application. [11

Inventions Protected by Patent

OR REGISTRATION at fixed and moderate charges. The "Inventor's Manual," free by post, or gratis on application. Apply to Mr. BREWER (late Barlow and Co.), 89, Chancery Lane, London.—Established Twenty-one Years. [12

Patents for Inventions.—

Messrs. DAVIES and HUNT procure British and Foreign Patents for Inventions and Registrations of Designs, at moderate charges. Full particulars given in their "Handbook for Inventors," to be had (gratis) from No. 1, Serle Street, Lincoln's Inn, London, W.C. [13

Superior Trusses, Elastic

STOCKINGS, &c., Manufactured by
W. H. BAILEY & SON,
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Trusses from 9s. each; Stockings from 4s. 6d. [14

Hall's "Lung Restorer"

gives instant relief in Coughs, Asthma, Hoarseness, Sore Throat, &c. Mr. E. Brooke, Mirfield, near Leeds, writes, after suffering over ten years with an asthmatic cough, "Three 1s. 1½d. bottles cured me." Prepared by THOMAS HALL, Chemist, 6, Commercial Street (City side Great Eastern Terminus), London, and sold by all Chemists, in bottles, at 1s. 1½d., 2s. 9d., &c. [15

FIRST DIVIDEND AND BONUS TO SHAREHOLDERS JUST DECLARED.

A Dividend at the rate of 6 per cent. per annum.
A Bonus " 4 " "
Additional Bonus dividable among Shareholding Consumers, 2s. 6d. per ton on the Coal purchased of the Company.

The Joint Stock Coal Company, LIMITED.

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THE

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George M. Murphy.

THERE are few working men who have not heard of the "New Cut"—that squalid-looking, transpontine thoroughfare, where poor but honest Industry has to roughly elbow it with brazen-faced Vice and crouching Misery; where the "penny gaff" flourishes in all its infamous glory, and where the shouts of rival hucksters, the noisy cries of juvenile "Arabs," and the ceaseless conversation of street-idlers, commingle in a deafening Babel of sounds, suggestive of anything but harmony. A stroll through the New Cut, or the labyrinth of courts and lanes which diverge from it, is certainly not calculated to impress a foreigner with any very favourable notions of the social character of our poorer classes, or of the state of things which permits—nay, almost compels—thousands of our hard-working men and women, whose only crime is that of poverty, to dwell in a neighbourhood where the demoralising tendencies are so numerous, and where the elevating influences are so few.

Yet even in this miserable locality—this fever-nest of social and physical wretchedness—the earnest and persevering spirit of self-help, so characteristic of the modern working man, is busily at work. There is observable a growing tendency among the more thoughtful and intelligent of these people residing in this district to help themselves in effecting their emancipation from the social ills which surround them, rather than wait for the tardy assistance of others. The chief pioneer in this remarkable and encouraging movement was George M. Murphy, whose influence over the working classes of the south of London appears to be almost unbounded. Originally a working man himself, thoroughly acquainted with working-class life, its habits, deficiencies, and aspirations, he has for several years past been one of the recognised leaders of the vast industrial population inhabiting the extensive neighbourhood to which his exertions, as chief agent of the "Southwark Mission for the Elevation of the Working Classes," have principally been restricted.

GEORGE M. MURPHY

The details of his life are extremely simple. Born in 1823, at Chelsea, of respectable and industrious parents, his earlier years glided away unmarked by any incident demanding special notice. In 1839, seized with a desire to become a soldier, he, to the surprise of his friends, suddenly enlisted in the 51st Regiment, where he remained (serving chiefly in Ireland) until the death of his father, when his widowed mother purchased his discharge. During his stay in the army, Mr. Murphy served as drill instructor, non-commissioned officer, and on the recruiting staff. After two or three years spent with his friends in London, during which time his marriage took place, he received from Sir George Grey, then Home Secretary of State, an appointment as officer on board the York convict ship, lying in Portsmouth harbour, off Gosport. Here he remained until the opening of the new convict prison at Portsmouth, in 1852, when both officers and men were removed to that establishment. While at Gosport, Mr. Murphy became a convert to those temperance doctrines which he has since persistently advocated with such earnestness and fervour. A few months later, he left the convict service, and accepted an engagement as clerk in the establishment of Messrs. Fox and Henderson, at Birmingham. Here his leisure time was devoted to the spread of those broad and enlightened principles, the practice of which has conduced so largely to the improvement of the social condition of our artisan population. In 1856, the Rev. Newman Hall, desirous of assisting the working men of South London in their efforts to raise themselves in the social scale, conferred with the leading members of his congregation at Surrey Chapel, the result being the formation of the "Southwark Mission for the Elevation of the Working Classes." But a suitable agent was required. The committee, however, had not long to wait. George M. Murphy came forward, offered his services, was accepted, and ultimately proved to be the right man in the right place.

He went to work in a way characteristic of his future career. He knew that preaching without *practice* went for very little with the masses. They were influenced more by *deeds* than *words*. He sought to gain their confidence. To effect this, he interested himself in their movements, championed everything conducive to the promotion of their best interests, and fearlessly stood up in advocacy of their social and political claims. It was not long before the working men of South London began to recognise their new leader. They gradually gathered around him, and by their support encouraged him to persevere in the good work so auspiciously commenced by him; but it was still a heavy, up-hill task. He had many counteracting influences to contend with, and among these were the pernicious attractions of the public-house. However, nothing daunted, Mr. Murphy, with the kind assistance of Mr. Samuel Morley, was enabled to open the Lambeth Baths, a large building situated in the New Cut, where, during the last three or four years, meetings, lectures, classes, newspaper readings, and musical entertainments, attended by thousands of persons, have been regularly held during the winter months.

There, also, it was that, chiefly through the exertions of Mr. Murphy and his coadjutors, the two South London Working Classes' Exhibitions were held. Acting under the sanction of the Southwark Mission for the Elevation of the Working Classes, he drew up a code of rules, and forwarded these to some 200 persons who were known to sympathise with the poor. The circulars were well responded to, and suggestions were offered. Subsequently the rules were submitted for discussion to three public meetings of working men, and by them were unanimously agreed upon and passed. At the first exhibition 160 exhibitors displayed their articles, although not a shilling had been spent in advertisements; so that this was, as nearly as possible, a spontaneous collection. The exhibition was open for eleven evenings, and upwards of 30,000 paying persons visited it, the receipts leaving a large balance to credit. The second exhibition, held some months later, was still more successful. It remained open during forty-four days, and, although some forty of these were wet, the visitors numbered more than 124,000. The highest number of visitors in any one day was 5,076, the lowest 1,055. The pecuniary result was most gratifying. The late Lord Palmerston distributed nearly £300 as prizes from the profits of the undertaking.

The success of these exhibitions was in no small degree attributable to the efficient guidance of Mr. Murphy, whose services were warmly recognised by the various speakers at the closing ceremony of the later exhibition, presided over by the Earl of Shaftesbury, when the loud and ringing plaudits of the assembled crowd afforded a proof, if any were really required, of the high estimation in which Mr. Murphy is held by those to the furtherance of whose interests he has so zealously devoted himself. We can never have too many of such men. In their upward struggles with the many difficulties which surround them, and drag them downwards, our working men often require leaders on whose good sense and calm judgment they can safely rely; not mere spouters, who delight in setting class against class, but men who, like George M. Murphy, are not above teaching the principles of self-reliance, and showing how those invariably succeed the best who learn to help themselves. If Mr. Murphy had done nothing more than this, he still would have effected enough to secure the friendship and esteem of every right-thinking working man in the kingdom. As it is, we feel a pride and a pleasure in including him among our Men of the People.

*The Materials of Co-operation.**

The beginners and promoters of a Co-operative Society cannot, or do not, always succeed in collecting the right compeers. That is because they do not know what kind of men to look for. They never give it a thought, and no one suggests it to them. We may, therefore, do some service by calling attention to this question at the right time—when the mere formative steps are being taken. Among the first members invited to join a society there is always a choice. Anyhow, something is gained by knowing what kind of persons to look for. Those who know this will make a better selection than those who do not know it. It may not be possible to find many persons answering to the description we have given, but if a few are found, they will serve to leaven the whole, and a far better society will, in all probability, be formed than would result if personal fitness had never been thought of. These who know what a number of attempts at Co-operation in the metropolis have come to nothing, or next to nothing, will be disposed to think the remarks here made and the advice here given justifiable, and, possibly, useful.

When a sufficient number of members are enrolled—say, fifty, or a hundred, according to the neighbourhood of the proposed store and capital intended to be raised—and the capital is in hand, the next step is to select a house, or rooms, for the store. A clean, light place, or a place that can be made clean, should be chosen. Even the approaches to it should be clean. There may be dirty, muddling shopkeepers, but dirty Co-operators have never yet been heard of, and, let us hope, never will. A show shop is not necessary. Plain premises, in any accessible street, will do. What is called a "good shop in a good situation" will be dear, and the general public will not support it. Young Co-operators cannot compete with established and practised shopkeepers, either in a judicious selection of goods, or in quickness and address in serving. The young Co-operators have everything to learn at first, and little to lose. They should, therefore, take up a modest, safe, and economical position. As soon as they know who their members are to be, any shrewd manager can tell what they will want to buy, and how much weekly they are likely to spend; and they will take premises according to their expected business, and buy in stock according to their expected custom. If they go into the grocery business, or the meat trade, or tailoring, or shoemaking, or in the drapery way, their best plan is to get a good-natured, intelligent, experienced grocer, or butcher, or tailor, or cordwainer, or draper, to put them in the right way of buying in, and selling, and preserving stock. Such friendly persons are always to be found, if looked for. At first, wholesale dealers generally were shy of Co-operators, and would not sell to them, and the societies bought at a disadvantage in consequence. Before long, discerning and friendly dealers arose, who treated with them on fair and friendly terms. Mr. Woodin, of London, the tea merchant, and Messrs. Constable and Henderson, wholesale sugar dealers—who, however, only execute large orders—Mr. Hayes, of Dublin, and Messrs. Ward and Co., of Leeds, butter merchants, are examples of tradesmen of the kind we have described. In Lancashire, a wholesale agency has been devised by Mr. A. Greenwood, of Rochdale. The chief office of this agency is in Manchester. This Co-operative Agency keeps buyers in, who understand what to buy, and where to buy it. The want of this knowledge is always a weak point in young stores. By writing to this wholesale Co-operative Agency, both valuable information and services can be obtained, and possibly stores which would enable a young society to offer at once to its customers goods of the best and purest quality, so that the poorest residents in Shoreditch or Bethnal Green could buy food as pure and rich as though they were purchasers at Fortnum and Mason's, in Piccadilly—in fact, obtain West End provisions at East End prices. This is what Co-operation can give them, and nothing save Co-operation can do this for them.

With the information herein and heretofore given, the promoters of a store know how to provide for a start, how to make the start, and how to go on when they have made it. Nothing remains but to appoint good officers, and, when appointed, to trust them. Take security for their honesty by requiring them to hold shares in the society equal to the amount of money passing through or remaining a given period in their hands. Such persons never rob the store, where they happen to be dishonest, because they would be simply running away with their own money held as security. Dishonesty among Co-operators is very rare, and it is sufficiently provided against by the simple method explained. When servants are appointed, they should never be distrusted on rumour, or conjecture, or hearsay, or suspicion. Nothing but the clearly ascertained fact of wrong-doing should be acted upon as against them. If every society took as much trouble to find out whether it has good servants as it does to find out whether it has bad ones, many societies would flourish that now fail. As Mr. J. S. Mill, M.P., said to the London Co-operators, whom he addressed three years ago at the Whittington Club, "Next to the misfortune to a society of having bad servants, is to have good servants and not to know it." Talleyrand used to say to his agents, "Beware of zeal," which leads men into indiscretions. But if earnestness without zeal can be got, so that members shall go about propagating Co-operation among all the neighbours, inhabitants, and families about a store, success is certain. A true Co-operator has three qualities—good sense, good temper, and good will. Most people have one or the other quality, but a true Co-operator has all three: "good sense," to dispose him to make the most of his means; "good temper," to enable him to associate with others; "good will," to incline him to serve others, and be at trouble to serve them, and to go on serving them, whether they are grateful or not in return, caring only to know that he does good, and finding it a sufficient reward to see that others are benefited through his unsolicited, unthanked, unrequited exertions. Gratitude will come one day; but, if it never comes, high satisfaction and a good conscience will always come.

*The Herring Fisheries.**

The present article will treat of the preservation of fish for consumption, both foreign and national; of the parties employed, their various avocations; a comparison of the present importation with that of past years, and of the importation of materials which are required for the proper maintenance of the fishing. We shall also adduce statistical details for the elucidation of the present status of the fisheries.

Besides the great number of fishermen that are employed, there are as many more engaged on shore. Fish-curers are the parties who are the purchasers of fish, and who export them when duly cured to foreign parts, or send them to different parts of our own kingdom. Coopers make casks or barrels, superintend the curing and its apparatus generally, while there are great numbers of women employed in cleaning the fish, so as to make them suitable for consumption. But the cooper is the principal official who is engaged in curing. He serves four years of an apprenticeship, getting about £30 as wages for that period of time. Their wages when they become journeymen, during the portions of the year in which they are not engaged in curing, will be from 12s. to 18s. per week; while they get nearly double these sums when the fishing is current, because their work is then very fatiguing and laborious. But these workmen suffer equally with the hardy fishermen in years when the fishing proves a failure. Nearly all the fishermen served first as coopers, and no curer can properly carry on a fishing business without having served as a cooper.

Twelve days generally are required to make the fish fit for preservation. There is, however, an officer of fisheries, who examines the herrings to ascertain if they are properly cured, and if he finds them to be satisfactory, according to his judgment, he puts, with a red-hot iron, bearing his own initials, the crown brand upon each barrel, which is a sufficient guarantee that they may be used for food, and are in a sound, marketable condition. But, ere he brands at all, he causes the coopers to open barrels *here and there* among those intended for the brand, some at the head, others at the bottom, to satisfy himself that the first are properly cured. This official also ascertains if the casks are of the proper size, and if each one is able to contain 235 lb. of fish, in conformity with law. This system of inspection is undoubtedly one of the best that could have been devised for the regulation and management of the fisheries. The crown brand attests that the article is worth its value, and the mere stamp on the barrel is a sufficient guarantee to the purchaser that he gets value for his money. Foreign dealers are of the unanimous opinion that the brand prevents all disputes about quantity, quality, &c., and that it is a kind of protection to all dealers engaged in the purchase of herrings. Only a few thousand barrels were exported before the appointment of this official in 1815, and now there are between three and four hundred thousand barrels exported. The cost of the Fishery Board amounts to about £12,000, and the Government contemplate the discontinuance of this grant. But, if this should be done, it would certainly cripple the value of the fishery, and create many disputes and disturbances, which its continuance would undoubtedly tend to avoid. We may here observe that the cooper has a chance of getting a respectable situation as a fishery officer, on passing an elementary examination in scholastic attainments, as all officers of fisheries must have been for some time coopers.

The magistrates of the great towns of Germany were and are in the custom of appointing local inspectors to superintend the imported fish. But this practice was abandoned, so far as it affected Scotland, as the crown brand effectuated the object for which they were appointed. This is not the case, however, with Norway, where every curer is allowed to cure his own fish any way he pleases, and the consequence is that the fish must be scrutinised by inspectors. This occasions great delays, and gives a preference to the branded herrings in getting a more speedy sale.

There are a great number of men employed in importing various articles for the preservation of fish. In the year ending 31st December, 1864, there was a British tonnage of 5,913 tons, employing 455 seamen, and a foreign tonnage of 6,631 tons, employing 536 seamen, engaged in importing staves and hoops for the fish-casks; along with a British tonnage of 26,077 tons, manned by 1,865 men, in the importation of salt for the fisheries. There is also a tonnage of 25,189 tons in Scotland and the Isle of Man, manned by 1,965 men, engaged in conveying herrings and cod along the coasts of the United Kingdom. It will thus be observed that even the number of seamen engaged in the importation trade in connection with the fisheries is very considerable, and that they derive their natural sustenance directly from the great deep.

There was a British tonnage of 36,667 tons, employing 2,682 men, and a foreign of 5,355 tons, employing 383 men, engaged in the exportation of herrings and cod, during the year ending 31st December, 1864. Making a grand total of 93,856 of British, and 12,070 of foreign tonnage.

During the year 1864, there were 643,650½ barrels cured; the number branded being 217,392 barrels, and 364,507 exported. The returns for

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* Continued from page 164.

the cod and ling department show that there were 107,758 cwt. cured (dried), and about 8,000 in pickle. There were about 17,805 barrels exported to Russia, 168,588 to Prussia, 18,297 to Hamburg, 70,267 to Hanover, 2,130 to Bremen, 25,247½ to Holland, 831½ to Belgium, 125 to France, and 3,989 to other continental parts, making a total of 307,282 barrels.

There were 35,848 barrels exported in the year ending 5th April, 1810, 181,654 in 1830, 252,522 in 1840, 340,256 for year ending 5th January, 1850, and 377,970½ for year ending 31st December, 1860. These statistics will exhibit the exportation of herrings at different stages of time since the commencement of the present century.

From the brief sketch already given it will appear that the fisheries are of great national importance in affording the means of existence to many thousand sons of toil, being labour of a most dangerous and rugged character, and, at times, very trying both to the physical and mental faculties. And we trust that these few observations will have a tendency in increasing the interest taken in the welfare of one kind of workmen to that of another, in estimating the conditions of all classes of the community.

*Employers and Employed.**

We have explained the law relating to the general contract or engagement entered into between employer and employed, and their mutual liabilities during the period of service. We have now to give an outline of its chief provisions respecting

III.—THE PAYMENT OF WAGES.

The mere fact of service is not in itself sufficient to prove the right to pecuniary payment. The law will always presume that *remuneration* is to be given to the servant, but it does not follow that that remuneration is to take the form of money. In the case, for instance, of domestic service, board, lodging, &c., may be the fitting equivalent for the service rendered. In a trade or business, the opportunity of learning the trade, or becoming proficient in it, may also form sufficient consideration. It is therefore necessary in all cases that there should be a distinct understanding, either written or verbal, as to the sum to be paid as wages.

The time at which wages become due depends, in the first instance, on the nature of the contract—that is, whether it be a weekly, monthly, or yearly hiring. As a rule, the payment will follow the period of the engagement, and no wages can be claimed until that period has expired. But this may be otherwise regulated by agreement between the parties; and, in certain cases, general custom will be sufficient to establish the intervals at which payment is due. Thus, in a trade where wages are always paid by the week, a person who might be hired to work at that trade for a particular term—say, two or three months, or until a certain contract was finished—would nevertheless be entitled to his wages week by week, in the absence of understanding to the contrary.

Whatever may be the legal duration of the service, whether weekly or for any longer term, the servant who leaves it without just cause before the full term has expired can claim no wages for any portion of it. On the other hand, if the servant be discharged without such cause before the proper end of the term, he can recover wages for the entire period; but if he be rightfully dismissed before the term has expired, he is not entitled to wages for the time he may actually have served. The causes which are held to justify a master in thus dismissing his servant will be explained in the next paper.

The subject of additional or extra work is one that frequently gives rise to disputes, where the employment is not of the nature of piecework. But the servant is not held to be entitled to additional wages on the ground of additional labour imposed on him, unless there has been an agreement on the subject. He cannot be required to perform any *other kind* of work than that for which he has contracted; but he may fairly be requested to do an unusual quantity of his own work when unusual circumstances require it, or even to perform an increased quantity as his master's business may increase; and, where there has been no agreement, it is at the master's option to give him extra remuneration. At the same time, the master has no right to tax his servant beyond his proper strength; and should he clearly attempt to do so, the latter would be justified in refusing compliance with the request; then, while holding himself in readiness to perform his proper duties, he would not be debarred from obtaining his ordinary rights by the refusal.

It is expressly enacted that the wages of persons employed in all kinds of manufactures and mines shall be paid in the current coin of the realm; and that the master shall not be allowed to plead a set-off against any part of the claim, on account of goods supplied to the servant from a store of any kind, in which the master may have interest. Formerly great abuses prevailed in the manufacturing districts, through the power of masters to pay their servants, either wholly or in part, by tickets for a certain quantity of provisions, &c., to be obtained at particular shops. To remedy these evils, an Act of Parliament was passed in 1831, declaring all such payments illegal. This act is called the Truck Act, it being intended to prevent the system of exchange or barter, which was known by the name of "truck." Under its provisions, if any master should pay his servant according to the truck system, even where an agreement had been made to do so, the payment would be void, and the servant might still sue the master for his wages. The master, on the other hand, would be unable to recover from the servant the value of the goods so supplied. The provisions of this act do not extend to the cases of domestic servants, or persons engaged in husbandry.

The Truck Act is not intended to prevent deduction from the wages of a workman on account of medicines or medical attendance, or of victuals dressed under the master's roof and there consumed, or of rent for the occupation of any tenement, or materials and tools supplied for use in the employment. But in all these cases the stoppage must not exceed the true value of the articles; and it is distinctly stated in the act that the master is not entitled to make any deduction "unless the agreement or contract for such stoppage or deduction shall be in writing, and signed by such artificer."

As to recovery of wages where payment has been refused, the servant's proper remedy is by action in the County Court, which has jurisdiction in cases where the sum does not exceed £50; but the defendant can, if he please, remove the case for hearing from the county court to the superior court, when the sum in dispute is over £20.

The Statute of Limitations prevents the recovery of wages by a servant after the lapse of six years; and in any case where a servant has left the situation for some time before bringing his action, the presumption of the law will be that the wages were paid—that is to say, the master will not in the first instance be put to the burden of proving the payment, but it will rest with the servant to show sufficient reason for not having brought his action before.

The bankruptcy of a master is not in itself sufficient to release the servant from his contract. On the contrary, the liabilities of each party towards the other may continue, unless the service is terminated by mutual consent or stoppage of the business. Where wages are due to clerks and servants at the time of the bankruptcy, the court may order them to be paid a sum not exceeding three months' wages, or more than £30. If a larger sum is due, the servant must prove his claim with the other creditors for the surplus, and take his share of the estate with them. If a certain term of the contract remains unexpired at the date of the bankruptcy, the court may order such a sum to be paid to the servant who is thrown out of his employment, as may seem to meet the justice of the case. Workmen by the job or piece are not included within the provisions of this act.

On the death of a master, the wages due to a servant may be recovered from the legal representatives or executors. In case of the servant's death, his personal representatives are entitled to receive the wages due for the time he may have served. But when there has been a contract for a certain period, or certain services which were uncompleted at the time of the servant's decease, no claim to wages will be allowed for the uncompleted term of service. Thus, nothing could be recovered, as a matter of legal right, by the representatives of a servant who had contracted for an entire year at wages payable yearly, but had died before the year's expiration. This is, of course, provided that no clause to meet such an eventuality had been inserted in the original contract.

We shall treat of the law as to Dismissal and Character in a concluding paper.

* Continued from page 163.

Tips and Tissues.

There he goes, directly the dinner-bell is rung, with his apron tucked up round him, and as quickly as if he were walking for a wager. He is not thinking of his dinner, that is very evident, but of something which he thinks of far greater importance: indeed, I am not sure he has any dinner to think about; and I am tolerably certain there is an empty cupboard at home, though he earns good wages. His money does not go in dress, for his wife and little ones are shabby enough in all conscience; nor yet exactly in drink, though he might do without the one or two unnecessary drops and glasses of ale he takes during the week. No, Jack Thompson is not a drunkard; but he is nearly, if not quite, as bad. He is smitten with the fatal mania which attacks so many, which makes almost as sure a road to poverty, degradation, and moral degeneracy as drunkenness itself. Horse-racing—the petty miserable spirit of gambling which makes him believe in tips, and hunger and thirst after "tissues"—is the bane of his life. And there he goes to see the telegrams stuck up at the sporting newspaper office, and find out which horse is at five to one for the Liverpool Steeple Chase or the Great Northamptonshire Stakes, whether any have been scratched, and how many have arrived. He never saw a race in his life, and he does not care to see one. The excitement, which is almost natural and irrepressible, arising from the contest of several beautiful and highly-trained animals, leaping with big bounds over the course, the varied colours of the riders flashing in the sun, now blending like a parti-coloured ribbon, and then changing with fitful velocity into light patches of brilliant colours—is not the excitement to his taste. He could not feel it. He is as dull to the poetry of motion as to any other sort of poetry. There is no beauty in his mind, and he knows nothing about beauty anywhere else. What he is excited about is the chance of getting a few shillings in a miserable manner by "besting" somebody else (I have heard the phrase), instead of earning them by straightforward work. His is a mean, low nature, and he finds plenty of other mean, low natures to associate with. So he and those like him hang about newspaper office windows, and copy the tissues and collect together in narrow lanes and courts, and shuffle about on the "Ruins," till the police clear them away, and buy little pamphlets, called "Racing Indicators," or something of that sort, and "put one another up to good things," and try to cheat, or "best," each other, though they know there is very little to be got by it. Just as, in Fielding's novel, Jonathan Wild could not keep his hand out of a card-sharper's pocket, though he knew there was nothing in it; and the sharper could not help cheating at cards, though he was well aware Jonathan would not pay if he lost.

Jack Thompson, and those like him, would scarcely know a racehorse if they saw one—certainly know nothing about his good points. The fiery eye, the muscular haunches, the supple limbs, the clean pasterns, which make the thoroughbred so beautiful that better men than Jack feel sorry so noble an animal should be the mere tool of turf speculators and swindlers, are as indifferent to him, except for what they are worth in the money market he dabbles in, as the drooping head, the staggering limbs and the wall-eye of the most wretched street hack. But he believes in what some penny prophet learned in horseflesh says, contradicted, however, by half a dozen rivals, each as learned and each as knowing in all sorts of dodges; he believes in "private information," and he believes in "tips" given in the tap-rooms of dirty little public-houses, where, of course, no betting-lists are kept, as that would peril the licence, but where two or three book-makers are generally to be found, who are kind enough to take anybody's half-crowns, or even shillings, on account of the next "event."

Great is the faith of Jack Thompson and Jack

Thompson's companions. We who never bet are, of course, not to be compared with him for shrewdness and general wide-awakedness. Not we. He is "up to all the moves," and we are "flats." He knows all about the trainers, and the jocks, and the owners, and the book-makers, and betting, and hedging. He bets and hedges, and keeps a book himself in a small way, and stands a good many "drops" while talking about it. He has friends waiting for him; and directly they meet they pull out their little printed books, and crumpled scraps of paper, on which mysterious things are written. They whisper continually, and talk aloud about "going *there*," and seeing "that party." Altogether, anybody would have to get up very early in the morning to steal a march upon Jack Thompson. If he could afford it, and they would suit his work, he would wear trousers very tight in the legs, and a breast-pin with a horseshoe at the end. It is very well he cannot manage those articles of personal adornment, for he would then be so tremendously clever and knowing, that all the rest of us would be extinguished.

But Jack has faith. He believes that everything about the horse he happens to back, or whose name he has drawn out of a hat in a "sweep," is perfectly "square." The owner will not bet against him; the jock will play no tricks with him; he is, out and out, the best horse in the field, and, therefore, sure to win. Lay borrowed half-crowns upon him; "put the pot on" him—the wife's new gown—the children's boots—their dinner, even, on him. He is sure to win. Briaræus, in the *Penny Lamp-post*, has put his name in capitals; the *Lamp-post's* rival, "Swivel-eye," of the *Weekly Tipster*, mentions him respectfully. He has been sent out as a safe thing by "Judicator," of Manchester, and a dozen other gentlemen of large experience on the turf, who execute commissions, and know of good things, and send prophecies in exchange for postage stamps, and whose "tissues" are so many pearls of price!

But the race comes off, and Jack knows the result. He had scarcely any breakfast worth speaking about, but found a penny for his sporting paper, and contrived to steal out unobserved in the course of the morning to have a peep at the betting, and has been shuffling about all dinner time, popping into the little publics, and helping to block up the pavement of a main thoroughfare, and making himself generally a nuisance to other people. And now he knows the result. His "pick" was nowhere, and an outsider at forty to one was landed in front by two necks. Of course, the owner was "square;" Jack said so—and Jack is so very wide awake—up to all the moves, bless you!—and the jock was square; and the horse was all right, and yet—he was nowhere! And Jack has spent nearly a week's wages on him, and has got into debt, and neglected his home, and drank mere than was good for him, and now sneaks home, where there is no fire and no supper, and curses his luck, with a few additional curses for his wife and children, who are such fools that they know nothing about horses.

Never mind, he says to-morrow. There is a good thing that he knows of for the Two Thousand, or the Derby, or the Midlandshire Plate. One of the prophets, who calls himself "Bill Buggins's Bulldog," and has information direct from the stables, is strong upon a certain three-year old, and Jack Thompson is sure to be right over that.

I have seen a little book called "How to Win on the Turf," containing rules by following which it is impossible to lose. But how can A win, unless B, or C, or D, or somebody else, loses? That is just what I cannot make out. But some people do always win; they are professional bettors, and their victims are poor, conceited, lazy "loafing" fellows, like Jack Thompson, who would rather win a shilling in a semi-swindling sort of way than earn five, and who are far more certain to make a quick race towards miserable, dishonest poverty, than any horse they bet upon is to come in first at the post.

Just scan the disreputable-looking crowd who hang about at the corners of certain streets, waiting for the winners to be announced. There are the lazy working man; the fast clerk, who will some day be tempted to borrow without leave; the shopman, who scans his master's till with a longing eye; the lad who dreams that to be "fast" is to be manly; and the professional bettor, half book-maker, half skittle-sharp, whole rogue, who cares nothing where the money comes from, so that his book shows "all right" when the race is over.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

TRUE AND FALSE TASTE IN ORNAMENTAL DESIGN.

Among our art-workmen there is not unfrequently observable a lamentable neglect of the true principles of decorative design. It is forgotten by them that, in attempting to combine beauty with utility, the former should be kept subservient to the latter. As it is, we sometimes find utility sacrificed to mere ornament, thus rendering the article little better than useless. The ancient art-workers were too wise to thus commit themselves. They endeavoured, and with no small measure of success, to render an article—say a vase, tripod, or pitcher—ornamental, without altering its distinctive character. They could not descend into mere imitation. In modern times it is different: instead of attempting to appropriately ornament the articles, we seek to make it appear what it is not. Thus, a rug is converted into a picture, a bracket is made a flower or a hand, and so forth. An instance of this is given in our illustration. Here the chandelier is made to resemble a mass of flowering plants, the leaves being formed of metal and the flowers of glass. On comparing the meretricious effect thus obtained with that which might have been produced had the designer kept to the first principles of his art, we perceive at once the importance of true taste in design. A *real* artist would have endeavoured to develop, as far as possible, the beautiful results arising from the union of refined form with the grace natural to large suspended masses of light, as shown in many of the more expensive kind of chandeliers. In the design given by us, the full effects of the suspended mass of light is lost—first, by being thrown upwards, instead of downwards, from the lamps; second, by becoming obscured among the opaque forms of the metal foliage. A simple stem, slightly ornamented, with branches fitted with glass globes, would have been far more effective, and less repulsive to the lover of true art. But we might go much further, and say, that had a tithe of the labour and expense incurred in making the chandelier appear what it was not, been devoted to simply ornamenting the article in an appropriate manner, the designer might have produced an effective work of art. The lesson is obvious. Never sacrifice utility or appropriateness to mère prettiness or caprice, but always allow the object decorated to retain its distinctive character.

Sharing Profits.

It is rather interesting to note how slowly ideas obtain practical development. The lonely thinker, seated amongst his books, puts into words a thought which is destined to have great influence amongst his kind, and yet he may die before even a few men perceive the significance of his words. Free trade had to wait for Cobden, and yet all that Cobden and the League fought for had been taught long before. It has been just the same with other truths of economic and of the other sciences. Mankind, in the lump, is like inert matter—it takes much to move it at first, but less to keep it in motion after a start has been made.

We have every desire to help, as much as we can, all the plans which tend to the material, the moral, and the intellectual development of our working classes, and hence it is that we watch with peculiar interest the spread—gradual, but sure—of the great principle of association. It is an old principle. Like all other principles, it has been often abused, but we think the time is coming when it will be more widely and rightly appreciated. It would already have had greater support, if masters and men were more in the habit of reading or thinking on economic problems. If Mr. Mill's "Political Economy" were as well known as it ought to be, there would be less absurdity talked about the science than may now be heard anywhere, the House of Commons not excepted.

We may do some good by calling attention persistently to facts which indicate the growth of knowledge. In No. 10 of our Journal we alluded to some results of the associative principle. We have new something more to say on the same subject.

It is well known that for a long time it has been the practice, in certain classes of warehouses in Manchester and elsewhere, to give heads of departments a direct interest in the profits. Merchants give to salesmen a per-centage of profits in addition to salary, and thus induce their servants to labour more diligently. It is important to consider whether the same plan could not be practised, with results equally beneficial, with servants of a lower grade. We gave some instances in which this has been attempted. So far the success has been great. We have been favoured with another and less known adaptation of the principle. Mr. David Morris, F.A.S., of Manchester, and who is well known throughout the cotton districts, not only as mill adviser, but as a gentleman watchful of the best interests of working men, gives us the following statement. Put as a supposition, it may also be taken as a statement of fact. So

soon as the masters and the operatives get quite over the evils produced by the great crisis through which they have passed, we hope to see the bounty system described by Mr. Morris tried in many places.

Mr. Morris states his case himself, as follows:—"Suppose a spinner is paid 1s. per hank, and his production is 24 hanks per week of 60 working hours, then his wages will be 24s. per week. If, by the stimulus of an offered bounty, he can be induced to produce 26 hanks per week, his wages may be advanced *by himself* to 29s. Thus—

	s.	d.
For each hank 1s.	26	0
Bounty for first hank over 24 .	1	0
Ditto for second hank over 24 .	2	0
Total	29	0

While, if through increased smartness and industry he can now and then produce 27 hanks, his wages would amount to 34s., as he would then receive 27s. for the 27 hanks, and 7s. bounty for the three extra hanks—viz., 1s. for the first, 2s. for the second, and 4s. for the third.

"Take, as an illustration of the general principle, a cotton-spinning mill where 24 hanks per spindle each week is required to meet all expenses and leave a fair profit to the mill-owner. The fixed expenses—rent, taxes, insurance, interest on capital, depreciation for wear and tear, carriage, and a portion of the general wages—being the same, whether 24 hanks or any below or above that number be produced, it follows that the loss or profit on the concern will be affected by the quantity produced by each spinner in each week. Thus, if 24 hanks will give, as cost of production (excluding loss of cotton in working), 2d. per lb., then it is fair to assume that 22 hanks will raise the cost to (say) $2\frac{1}{4}$d. per lb., while the production of 26 hanks will decrease its cost to $1\frac{3}{4}$d. per lb. In the case of the 22 hanks production, a loss of profit equal to one farthing on (say) a weekly production of 20,000 lb., will be more than £1,000 per annum, while 26 hanks will, in like proportion, give an increased profit of the same sum annually. Taking the standard of production, then, at 24 hanks per week, while an increase of two hanks will give the worker an increase of £12 10s. per annum as bounty, the employer will receive £104 3s. 4d. as increased profit; and, supposing him to employ 10 spinners, whilst he pays £125 per annum in bounties, he will receive in increased profit £1,041 13s. 4d., thus leaving him a net gainer of £916 13s. 4d. as the result of the stimulus of bounties."

Mr. Morris could tell us of mills in which this plan has been adopted, and in which it was successful. It will be seen that, as a matter of mere pecuniary interest, this scheme is one which is well worth the consideration of masters.

On the Construction of Harmoniums.

The harmonium bids fair to become as popular a musical instrument as the pianoforte, over which it possesses some advantages—such as *superiority of expression*—which renders it peculiarly adapted to accompany the human voice—and, especially, *cheapness*. An harmonium possessing a compass of four octaves may be purchased, in a neat oak wood case, for £5. For this moderate sum we obtain a miniature organ—the "expression organ," as it is called by French manufacturers—of great sweetness of tone, as well as power, in which both melody and harmony—the song and the accompaniment—are capable of being combined.

The great portability of the harmonium is truly surprising, when we consider the volume of sound emitted by it. This is due to the principle of construction consisting in the employment of the "free reed," made to vibrate by a current of air. A primitive form of the free reed exists in the toy known as the Jew's-harp; and it has passed through various grades of improvement in the accordion, aërophone, concertina, eoline, harmonica, melodion, organo-violin, seraphine, &c.

The sounds emitted by this instrument are produced by causing a tongue of elastic metal to vibrate—the free reed; the agent of vibration being a current of air, driven with greater or less velocity through a brass block, having a brass tongue fitting an opening in the same, as in Fig. 1. The reed itself, or the small tongue of brass, is *a*, and this is set in a block, *b*, called the reed-block. It is merely the vibration of this

Fig. 1.

Fig. 2.

reed that makes the sound, and the quality of the sound, or tone, depends, among other things, on the velocity of the vibration. Thus, the tone C is produced when the number of vibrations is exactly 512 in a second. In doing this, the reed rises nearly $\frac{3}{16}$ of an inch, and, consequently, travels in one minute 450 feet, or nearly as far as the piston of a large steam-engine.

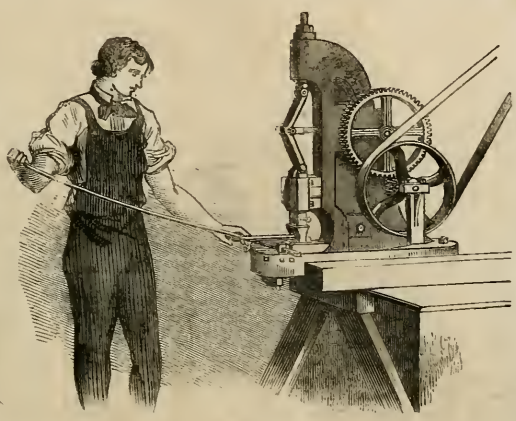

Fig. 3.

The note which the reed must represent upon the key-board depends not only on its length and breadth, but also on its elasticity—that is, upon its weight. A short tongue, thick at the base, vibrates with difficulty, making very restrained and repeated oscillations, and, in consequence, emits a very sharp sound, or high note. A long tongue, heavy at its extermity, thinner towards its base, is easily made to vibrate, but it

Fig. 4.

gives sonorous undulations, long and slow, constituting what is termed the *bass*. If a strict proportion be observed in a keyboard of five octaves, the reeds on the extreme left will have an inconvenient length relatively to the other proportions of the instrument. This inconvenience is remedied by adding to the free extremity of the reed a small quadrilateral prism of lead, which, by its weight, is equivalent to lengthening the reed.

It is in the elaboration of this little reed-block and reed that the greatest ingenuity has been exercised. The raw material of the reed is simply a strip of sheet brass, a full tenth of an inch thick, some two or three inches wide, and several feet in length. The workman takes this strip, in convenient lengths for handling, and puts it under the die of a press, as shown in Fig. 3. This die cuts out one blank, which is simply a flat bar of brass. The bar then goes to a machine, which planes the edges and one face. From this machine it passes to another, which cuts the slot in the block. These processes proceed very rapidly.

The slot in the reed-block is made by a small circular cutter, also in a machine. Every mechanic knows that, in cutting through a thin plate of metal with a circular cutter, a thin fur or jagged edge is left at the ends where the cutter enters and stops. To remove this edge by an ordinary file is no great task, if one has plenty of time; but, in order to produce musical instruments at a very low price, they must be made quickly, and, therefore, elaborating a small orifice like the one mentioned is too costly. A New York manufacturer of melodions, Mr. Carhart, has invented a peculiar file for this purpose, which is so economising and efficient, that the greatest benefit has been received by the inventor from its employment in his work.

The reed—or, as the uninitiated would call it, the tongue—is also peculiar. In former times it was punched out. Experience has proved, however, that punched reeds are not durable. The metal is so much condensed about the base of the reed (where the square shoulder is), that the cohesion of the particles is destroyed, the metal is rendered brittle, and the reed breaks at the place designated. The improved practice is to saw them out by means of a series of delicate cutters set in a wheel. This process takes more time than punching, but a much better piece of work is produced.

When the reed is sawed out it is riveted on to a block by another machine, which, although insignificant in appearance, has worked a complete revolution in this branch of harmonium construction. The appearance of the rivet-head may be seen by reference to Fig. 1. It will be observed that there are two raised heads, *d*, with crossed lines. These heads are portions of metal pushed up out of the reed-block, as at *e*, Fig. 2. There is no pin or solid rivet in the reed or its block; and the saving of time in punching holes, cutting off the pins, putting them in, and closing them—as practised in the old method—is apparent at once to the professional reader.

After the reed is in its place in the block it is planed on its top. The thickness of the reed is less at the base than at the free end, and the tone of the reed is determined by this planing. So accurately does this planing-machine work, that the reed, when delivered finished from the machine, is within a sixteenth of a true note, and requires only a little adjustment to make it perfect. When we add that the tuner, in giving the reed its proper pitch before it is finally placed in the instrument, uses a smooth file, and that *one turn* of this file is sufficient to alter its tone materially, it will be seen that the machine must be very nicely adjusted to make the reeds correct, or nearly so, at first. We cannot dwell longer upon the reed, interesting as it is. The tube-board, or that detail of the instrument which receives the reed-block, demands attention. Viewed as the product of machinery, it is marvellous.

THE REED-BOARD.

This is simply a strip of plank, the length of the key-board, full of little cells as shown in Fig. 4. In each of these cells there dwells one of the reeds we have seen made, and under the bottom of the cell there is a valve placed, covered with soft kid leather. Now, as the performer works the bellows by his feet, he produces a vacuum therein; so, when his nimble fingers press the ivory keys before him, the valve alluded to opens, and the air rushing down upon the reed below, makes it vibrate most rapidly. So many blasts of the bellows, so many keys pressed upon such and such times, will produce some of the most exalted and refined emotions in the human breast that the soul is capable of experiencing.

The cells, or tubes, as the makers call them, where the reeds are set, are all made by a most ingenious machine, which is automatic; and the

strip of plank out of which the reed-board is made, having been placed in a certain position, the cutter goes on and produces all the cells, as at A, and performs its office with a regularity and exactitude which is almost human. This machine will rank with Blanchard's automatic lathe; for it is not only capable of executing work in straight lines, but also carves scrolls for lyres and similar work, with such nicety and rapidity that no hand-work can approach it. The cutters revolve with great velocity, 7,700 times a minute, and the speed of the driving-belt is just one mile in a minute.

There is another little detail in this reed-board worthy attention, and this is the small groove in which the reed-block is set. This groove is about a tenth of an inch wide and deep, and is made by a swiftly-revolving cutter. Each groove is an exact fac-simile of the other, and those made years ago will fit any reed-block made to-day. One of these tube-blocks is cut out in five minutes, and the rapidity with which the details are executed is worthy of notice.

Benefit Societies in Ireland.

As is the case too frequently in England, the benefit societies in Ireland are, as a rule, small, isolated organisations. Often the society is composed of from thirty to sixty members, although there may be three or four of these meeting in the same street. In the numerous tontine societies of this class which exist in Dublin, the members are admitted at all ages up to fifty years, on payment of 2s. 6d. entrance fee each, with the same weekly contributions for all. Any one acquainted with vital statistics will see at a glance that this principle is unsound. How long would an assurance company continue in existence which practised such a system? But the evil does not end here. The general rule of all these societies is to divide the *whole* of their funds each Christmas. The result of this course is that, for all practical purposes, they are bankrupts on New Year's Day. 'Tis true the registrar of friendly societies in Ireland, Mr. Griffen, now refuses to register any society having a rule to so divide its funds. What has been the result of this very proper action on his part? Simply that the societies either decline to register altogether, or, having registered, they divide the funds notwithstanding.

Another great evil in connection with these societies is, that they usually combine a loan society with the sick benefit society, and lend, on personal security, the funds got in for sick insurance. This creates a habit of dependence, not independence, amongst the members: they learn to borrow money, not to save it.

To complete the evils of these small societies, they invariably meet at public-houses, and, while paying, say, sixpence a week to the funds of the society, they spend shillings for "the good of the house." The loans are mis-spent in drink, and the "Christmas divide" is generally largely divided with the publican. If it were even used to provide comforts for the families of the members at the festive season, it would matter less; but not unfrequently the publican receives the nine-tenths of it, and the working man's family lose even the savings in the sick club for the year.

The New Year finds many of these societies formed anew. The old society is broken up, and a new one formed on its ruins; and from this latter the old men, who might now expect "benefit" from its funds, are cast out, and can find refuge nowhere else in their old age. In this respect these societies are a plain and open swindle. The money was taken week after week from these aged members, until they became feeble, and then the organisation was broken up, and the old men excluded from the new society formed by the younger members.

Every means, too, are taken to dispute claims, and reduce the amount payable at death. As a rule, the allowance at death is "£4 from the chest," and a "levy" of 1s. per member, which may produce £4 more. The members have not yet come to see that this "levy" is a mere system of "sending round the hat," or of begging "according to the society's rules." A well-managed benefit society ought not to raise money by such means, any more than an assurance company would presume to do so, and yet try to exist.

There are also in Ireland, especially in Dublin, branches of ill-managed Irish-English societies. As an example, we have, perhaps, thousands of working men in Dublin who pay weekly to the agents of the St. Patrick's Society, with its head quarters in Liverpool, lately under the care of Mr. Tracey, whose name has been rather notoriously prominent in the public press, in connection with legal proceedings taken to try and put gross mismanagement of the St. Patrick Society right, if possible. There is also a branch of another Liverpool society in Dublin. Its "head office" is in a bedroom in a certain street here, and the head agent is an illiterate woman. Thousands are also members of this society; and while it is rather better managed than the other, yet it is far from what a good, well-regulated benefit society ought to be.

In Dublin, Belfast, Cork, and a few other places, we have branches of the Odd Fellows, Foresters, and Rechabites. These societies are established on a better basis than the local tontine societies; they do not take all ages in at the same entrance fee; they do not lend their funds as loan societies; they do not divide their funds at Christmas; and their "lodges," "courts," and "tents" do not break up and re-form their "lodges," &c., at New Year's Day, excluding the older members. The Odd Fellows have almost all got their "lodges" clear of the public-houses; the Foresters, however, cling to these places most tenaciously, and could not be induced to meet elsewhere; while the Rechabites, as their name implies, enforce total abstinence as *the* test of membership.

A peculiar feature of nearly all our benefit societies in Dublin is, that the wives and families of married members, and the mothers and sisters of single members, receive medical attendance and medicine, as well as the members themselves; but this often leads to manifold bickerings and complaints between societies and the over-worked and ill-paid medical attendant.

Now, how are the evils of these societies to be remedied? We think the first thing necessary to be taught in Ireland on this subject, is simply that a well-regulated benefit society is not intended merely to make provision for sickness from Christmas till Christmas. Here is the great point to be aimed at in educating our people on this question. It is a natural failing of the Irish character to be satisfied with the provision of the hour or the day. As an illustration of this, if an Irishman is asked to join a building society, and told he may be able to secure his own house in twelve or fourteen years, he invariably replies, "Where will we all be in half the time?" To get at the root of the evils connected with the tontine societies of Dublin, we must instruct the people that these societies, if properly conducted, ought to provide for future years—not for this year only.

The spread of information on social questions of this class is greatly needed throughout Ireland. Just as the people of Ireland are brought to combine together in benefit societies, building societies, co-operative stores, and similar organisations, so will they in like proportion cease to combine in Fenian or Orange societies, which only injure the members of them, and retard the progress and prosperity of the country. Just in proportion as English working men have ceased foolish combinations, and as Scotchmen have bid adieu to all notions of restoring the descendants of "Royal Charlie," and have united for objects of mutual benefit, so have they prospered; their material interests have been secured, and the wealth of Great Britain, north and south of the Tweed, has rapidly increased.

Let but the same spirit be instilled into the inhabitants of Ireland, and let them be shown that in organisations for mutual self-help lie the great secret of the upraising of the working classes, and the uplifting with them of a nation, and the day of prosperity and of progress shall have then dawned on Ireland.

Improvements in Railway Travelling.—A Liverpool contemporary is informed that the London and North-Western Railway Company purposes making great alterations in the passenger traffic between London and Liverpool. They are now building sets of saloon carriages, in which all the required and desirable comforts will be provided. There will be smoking-rooms, coffee-rooms, &c. The express trains will not stop at any intermediate stations, as water will be taken up at Rugby while the train is in motion. The journey will be performed in four hours.

Mortality in Different Occupations.

I.—MINERS.

To sit down calmly and leisurely to discuss the relative chance which any specific class of one's fellow-men has of enjoying the full term of life, may possibly appear to some very objectionable. And, no doubt, if mere curiosity alone prompted such a speculation, it would be reprehensible in the highest degree. For the life of a man may not be thought of lightly, as one would think of an event dependent solely upon chance; there are grave probabilities involved in the solution of the laws of mortality, and the cessation of the functions of corporeal existence moves the sympathies of the inhabitants of two worlds. But to apply such knowledge as experience yields regarding the certainty with which the infraction of hygienic laws infallibly carries with it the sequence of a shortened life, to the end that we may the better keep those laws, is not only wise and expedient, but good in every way.

Probably there are few in this age who are unaware that the influence of profession, trade, or occupation on the health of individuals, as of masses, is very great, and that such influence varies not only with the nature of the calling, but with many other circumstances. Thus, when we say that a particular trade is unhealthy, we know that it will affect different persons diversely, according to their ages and constitutions, and the locality where the trade is carried on is also a powerful element of variation. This should be borne in mind in all comparisons of the healthfulness of any kinds of occupation, or there will be danger of fallacious deduction.

In the absence of any clearly-defined system of nomenclature, no attempt was made to ascertain the different rates of mortality prevailing in the various occupations with any degree of exactness, or on any comprehensive plan, before the census periods of 1851 and 1861. The Census Commissioners, in 1851, adopted a form of classification (which they subsequently improved on), so as to distinguish, as far as the materials they had to work with would allow, the numbers living who were engaged in all the multifarious branches of industry, manufacture, &c.

The mortuary records of the Registrar-General's department supply the occupations of all who die—so the necessary facts are now in a measure obtainable, although, from the great difficulty in distinguishing many branches of different trades and manufactures, only those which are too well defined to admit of doubt should be used unreservedly. We have, therefore, selected one, about which there can be little mistake as the subject for our consideration in this first essay.

Here is the MINER, the human mole who drives his burrows into the bowels of the earth, revealing the secrets of the gloomy treasure-house, and casting up in rich profusion that vast store of wealth whose possession is the source of England's never-failing power and greatness. But let us turn from the dazzling picture of shining ore, and huge masses sparkling like gems, and look upon the means by which these magnificent results are obtained. Ah! but that is the dark cloud of which we have just seen the silver lining. It is like the warning remnant of mortality which the Egyptians, wise in their generation, kept on their festal boards to remind them of what they might otherwise forget.

High-born gentlemen and delicate ladies, duly equipped in the exterior habiliments of the miners' calling, and surrounded by every possible protection against danger, make a short expedition of pleasure and excitement down the shaft of some show mine; and when their curiosity is satisfied (which usually takes but a short time) they betray considerable anxiety to breathe the open air at the pit's mouth again. There they quaff a bumper to the success of the owner, and depart under the impression that they have acquired some knowledge about mines and life underground.

Very little will such pleasure-seeking explorers have seen of the real perils of the miner's life; those are *arcana*, revealed only by intimate practical acquaintance.

"They that go down to the sea in ships, that do business in great waters; these see the works of the Lord, and his wonders in the deep;" and thus, in paraphrase, it is with the miner. But

instead of being amidst the wild grandeur of the elements, his life is spent in solitude, darkness, and silence; with nought to break the terrible quiet save the constant tapping of his pick, or the dreaded fall of some overhanging mass which, perchance, may seal his doom by setting free the deadly vapour, or, more terrible still, by converting his narrow chamber into his living tomb.

What influence has the miner's occupation upon his health? There are miners and miners, many branches of the same family, and they have, therefore, different degrees of healthfulness.

The following table is derived from the Supplement to the 25th Annual Report of the Registrar-General, and shows the comparative mortality of the great body of miners at different ages, in juxtaposition with the mortality of males of all occupations throughout England for the two years 1860-61:—

Ages.	Deaths Annually to every 1,000 Living.	
	Males of All Occupations.	Miners of All Kinds.
15—25	7·2	8·2
25—35	9·1	10·0
35—45	12·3	13·8
45—55	17·7	29·3
55—65	31·1	43·1
65—75	66·3	109·7
75—85	148·8	216·1

From this table it would appear that at the earlier ages there is no great disparity between the miner's chance of life and that of other men; but when the meridian is passed, the diseases which are most fatal to the class come into operation, and the odds go fearfully against them. This will suffice for a general view of the comparison; but to obtain any striking results it is necessary to go more into details, which we shall do in another article.

*Building Societies.**

The terminating societies, which we now proceed to criticise, are based upon a calculation generally of 5, 7, or 8 per cent., and to terminate as soon as the investing shares have realised, with interest and bonus, a certain amount, which amount is fixed at the commencement of the society. The duration depends, of course, upon the sum fixed upon to be the ultimate value of the shares, the amount of subscription, and the rate of interest upon which the calculation is based. For instance, supposing 5 per cent. to be the rate of interest selected, the subscription 10s. per month, and the ultimate value £120, the duration will be fourteen years. If 7 per cent. be the rate chosen, with the subscription and ultimate value the same, the period will be ten years. The way these societies work is as follows: A borrower gets his future payments of 10s. per month per share, or whatever the subscription per share may be, discounted. But seeing that every year of the society's existence decreases the number of the future payments, the amount to be advanced must decrease in proportion. For example, at the commencement of the society the present value of a £120 share, taking 5 per cent. as the rate of discount, will be £60; at the commencement of the second year, £56 18s. 5d.; the third year, £53 13s. 7d.; the fifth year, £46 13s. 11d.; the eighth year, £34 16s. 7d.; and so on decreasing as the time goes on, and the society draws nearer its end. The reason of this is obvious. The society is to terminate in fourteen years; the first year the member who receives the £60 pays for the full fourteen years; and the payment of 10s. per month for that time is the proper amount for the repayment of £60 and interest, at the rate of 5 per cent. per annum. The second year the society has only thirteen years to run, so that a person borrowing then has one year's less payments to make; he is, therefore, only entitled to receive £56 18s. 5d. And, in like manner, the eighth year there remains only seven years' payments, so that the sum to be advanced is correctly decreased to £34 16s. 7d. It must be remembered, in judging of the usefulness of these societies, that while thus the amount to be advanced per share gets less every year, the repayment remains the same. Hence, if a person wish to borrow £200 at the commencement of the eighth year, he will have to take six shares, which will realise £208 19s. 6d., for which he will have to pay £3 per month, or £36 per annum, an amount quite equitable for the society to require, but which very few borrowers find it convenient to pay. The effect of this is just what any one might predict, from the consideration of the foregoing particulars—plenty of borrowers apply the first year, but very few afterwards. The members who join with the intention of borrowing are soon satisfied, and there is little to induce non-members to come in to borrow, but a great deal to deter them from so doing, in the high rate of the re-payments. Some of these societies actually raise the entrance fee even up to £1 per share to borrowers, although, certainly, as Arthur Scratchley, Esq., significantly says, "without sufficient reason." A large unremunerative capital is the inevitable consequence; the only way to dispose of it being to compel some of the investors to retire, and we find the ballot resorted to when borrowers fail to apply for advances, to determine which of the investing shareholders shall receive the amount of their shares. It would be very desirable, if possible, to know exactly how long a society will last, and to be able to reckon upon receiving a certain sum out in return for a definite number of subscriptions. But although these societies are advertised to last only so many years, experience proves that, while some possibly may have been successful, by far too many take a much longer period to work out than originally calculated. This follows not of necessity from losses, but either from the calculations being erroneous upon which the society was based, or from its being assumed that the funds would find constant employment, by being continually re-advanced to members, whereas we have seen that quite the contrary is most probable. The result is, the society has to be prolonged. The investor does not only not receive the amount he had been led to expect when the time fixed at first for its completion has arrived, but he has actually still to pay in common with all the members, until such time as the funds are sufficient for the purpose. The borrower has to continue his re-payments in like manner, but he has not the poor consolation of knowing that what he has to pay extra will be returned to him. Every payment he has to make after the stated period has expired, is so much added to the cost to him of the advance, and if it continue many months (as we have known more than one society to do), the extra amount a borrower has to pay raises the rate of interest in a very serious degree.

A friend of the writer borrowed £2,000 some years since from a society of this kind, and it lasted two years longer than had been anticipated. The re-payments amounted to over £200 per annum, so that the loan cost him £400 more than he had calculated for. Thus, neither for investors nor borrowers, does this kind of society offer much attraction or profit. The scheme itself is faulty. If the money could always be put out at remunerative interest during the whole existence of the society, then, as in a permanent society, a satisfactory result would be obtained; but the fact of the society having to terminate in a certain fixed period, or thereabouts, makes that, the one thing needful to its success, impossible. The following is the opinion of Arthur Scratchley, Esq., President of the Friendly Societies' Institute, of this particular kind of Building Society:—

> We believe the impartial reader can arrive but at one conclusion. He will become satisfied that not one in twenty, or even a greater number, can possibly realise for its members, whether investing or borrowers, the advantageous results originally promised; and that at the various epochs of their expected termination, there will be found such a deficiency of money as must deprive the possessors of unadvanced shares of a considerable portion of the accumulation which they had been led to expect.

The practice of bidding for the advances which has been introduced into some of these societies, in lieu of a fixed rate of annual interest, does not remove any of these objections, but makes it still worse for the borrower, because the premium agreed to be given is deducted from the advance at the time it is made, so that it is really paying the interest for the whole term down at once. It is pleasing, however, to reflect that societies of this objectionable kind are few and far between, as compared with the Permanent Societies and the Mutual Benefit Societies, which are all free from similar liability to disappointment and failure.

The Mutual Benefit Building Society, with all its advantages and disadvantages, will next engage our consideration.

We have already remarked that Mutual Benefit Building Societies are established upon the reciprocal loan principle: in other words, every member lends the society a certain periodical sum—say 5s. or 10s. per month—upon which he does not expect to get any interest, in order to obtain in his turn the loan of a large amount from the society—it may be £200 or £300—without interest, and repayable by instalments, spread over ten or more years; and the fund appropriated to advances is made up exclusively of the payments of the members, thus differing from the other two kinds of societies, which borrow, sometimes very largely, from their bankers or from some private source. Advances are made as often as the accumulated subscription and repayments are sufficient for that purpose; and as soon as all the shares are advanced or withdrawn, the subscriptions are returned and the society at an end. At first glance, it might be thought that very little profit is likely to accrue from such an arrangement. It might be argued that if the members only receive what they themselves put in, each will of necessity have to lend the society an amount equal to the advance he receives. But although this would hold good against a clothes or coal club, it does not hold good if applied to Building Societies; because a large portion, and in some cases the whole amount, required by the society in repayment of the advance, is drawn by the borrowing member from the property which the advance from the society has put him into possession of. We find that even in the longest societies—the Bowkett Building Societies, which, according to Dr. Bowkett's tables, are calculated to last 31 years, 25 of which the subscriptions are to be continued or an equivalent amount paid, the payment being only £2 per annum for £200—each member only lends the society £50 and receives £200. In the better kind of societies, where the subscriptions are twice as much or even more, about the same amount is paid by each member upon his shares, or it may be a little more, but not much, because the society terminates in so much less time. We can look at it in another way. Supposing a working man is only able to spare the £2 per annum, it will take about forty years for it to accumulate, with interest at the rate of 5 per cent. per annum, to £200, £80 of which will be his own; so that in the course of 40 years he will have made £120 profit by the transaction. But by paying it into a Bowkett Mutual Benefit Building Society, he secures the £200 within 25 years, and in the course of five years more may expect to receive the subscriptions, about £50, he has paid into the society.

* Continued from page 154.

THE MARRIAGE OF LABOUR AND SKILL.

'Twas a beautiful temple—the workmanship there
No plummet nor compass had spann'd;
Its dome was illumined with brilliancy rare,
By light from its architect's hand.

Bright jewels were flashing that never, I ween,
Were found in the pearl-diver's store;
And gems glittered there in their lustre serene,
More dazzling than queen ever wore.

An altar, all sacred, was reared in the fane,
A couple in wedlock to bind;
And sons of the morning re-chanted again
Their songs in the temple of mind.

They have bowed at the altar, and now they are wed,
The graces are waiting around;
The prayer and the last benediction are said,
And Labour his helpmate has found.

Their beautiful children are thronging the earth,
From Greenland to Italy's sky:
They have Labour's strong limbs of legitimate birth,
And Skill's searching glance of the eye.

What forms from that union have mantled the sod
Let poets—let history, tell—
Since Labour was sent from the garden of God,
With Skill as a partner to dwell.

M. Ellerd.

The Public Income and Expenditure.—It appears from the latest return presented to Parliament that the gross public income of the United Kingdom of Great Britain and Ireland in the year ended the 31st December last was £69,196,478 7s. 6d. The total ordinary expenditure was £65,948,265 4s. 10d.; showing an excess of income in the year of £3,248,213 2s. 8d. But £560,000 goes towards the expenses of fortifications, which reduces the excess of income to £2,688,213 2s. 8d.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

"All labour is sacred."—*Carlyle.*

THE WORKING MAN.

MARCH 31, 1866.

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METROPOLITAN AND PROVINCIAL WORKING CLASSES' INDUSTRIAL EXHIBITION FOR 1866.

To the Editor of the Working Man.

Sir,—In order to give effect to the valuable suggestion of your correspondent, "An Overlooker," which appeared in No. 11, the Council of the Metropolitan and Provincial Working Classes' Exhibition are prepared to offer a Prize Medal for the best working model of an inexpensive *Crust Grinder* which may be sent for exhibition. They are enabled to do this through the liberality of Robert Murray, Esq., F.S.A., Kinnahaird, Dingwall, Ross-shire, who has placed a silver medal at their disposal, for the purpose of encouraging mechanical ingenuity.

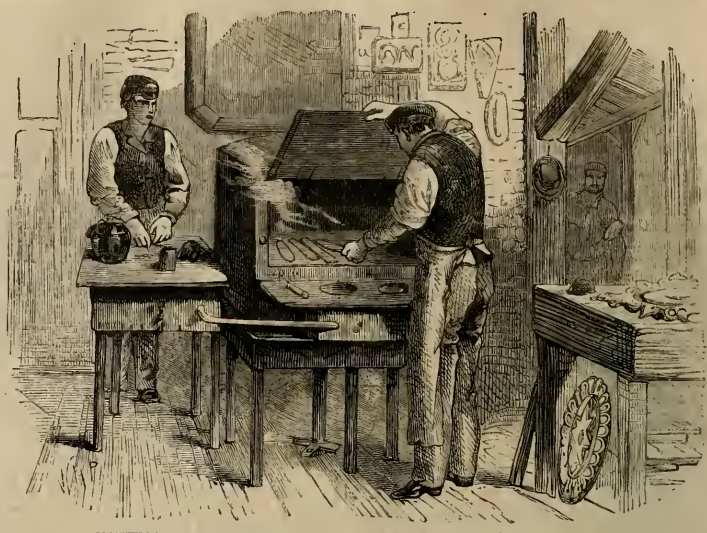
I would also respectfully suggest that the readers of the Working Man raise a subscription among their friends, for the purpose of building a Lifeboat, to be called "The Working Man," that it be placed in the forthcoming Exhibition, at the Agricultural Hall, and publicly presented to the National Lifeboat Institution, in the name of the working men of Great Britain. I believe that a penny subscription would be sufficient to accomplish this; and if Messrs. Cassell, Petter, and Galpin would kindly undertake to act as treasurers, the necessary amount might soon be raised.

The particulars of the Exhibition above referred to were advertised in Nos. 1, 4, and 5 of the Working Man.—I am, sir, yours faithfully,

W. J. Watts, *Secretary.*

7, Birchmore Terrace, Cardington Street, Hampstead Road, London, N.W.

[We have much pleasure in giving insertion to the above letter. The proposal contained in the latter part of it is for the consideration of our readers, from whom we shall be happy to receive opinions or suggestions upon the subject. Great success has attended the efforts made on behalf of the National Lifeboat Institution by the readers of another of Messrs. Cassell, Petter, and Galpin's publications; and if the working men wish to carry into practice the suggestion made by Mr. Watts, Messrs. Cassell, Petter, and Galpin will be happy to become the treasurers of such a fund as he proposes in connection with this Journal.—Ed. W. M.]



MANUFACTURE OF PAPIER-MACHE.—THE STEAM OVEN. (*See page* 202.)

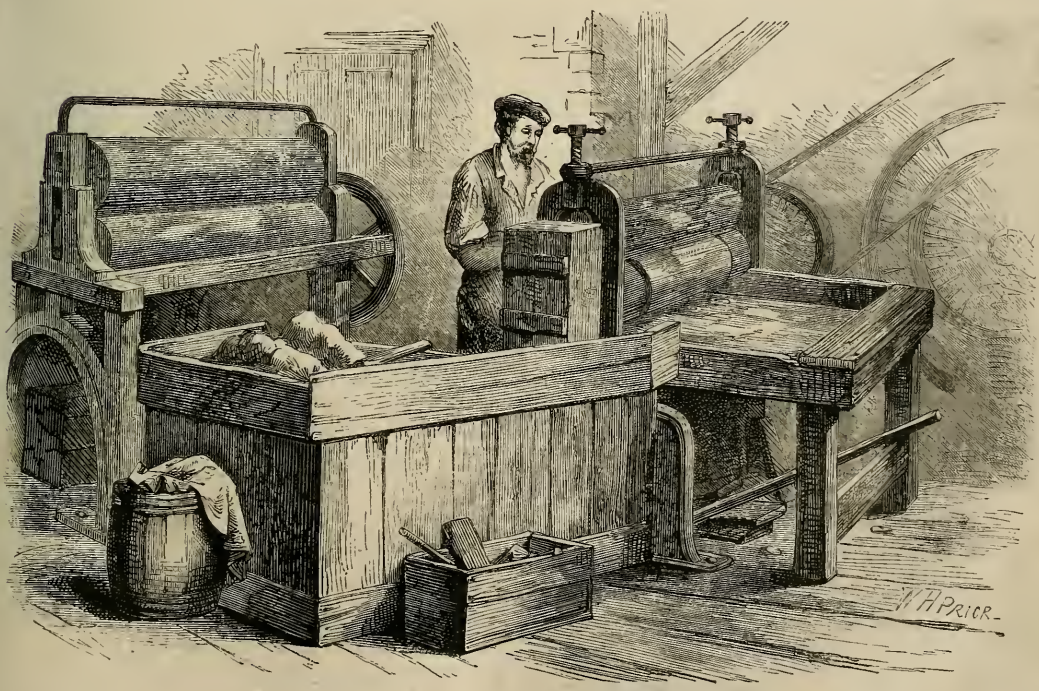
Blue-book Knowledge.

We hear enough of "blue blood," more than enough of "blue stockings," and not enough of blue knowledge. There is a knowledge of this description copiously supplied in Parliamentary blue books. Those who have the courage to read them, know their curious value, and are familiar with their curious treasures. Though seldom referred to, and less read, they are always prepared under a sense of responsibility, and those who furnish the information printed in them have ample means of knowing the truth of what they say, and strong inducements to tell it. They are responsible reporters or compilers; their words become authorities; they may be called to account if they mislead; an official weight attaches to their representations, and these considerations add or ensure accuracy to what they produce.

It is of great value to working-class readers to know that they can trust the accuracy of what they read. A great deal of what passes for knowledge is mere garrulity. The mind of the reader is diluted with mere words, and his real ideas are in danger of being washed away. It is worth while, therefore, to read even blue books, whose ordinarily dry and insipid pages are often luminous with the light of facts. The last six years of Parliamentary history were weekly written in an invaluable work, now unfortunately discontinued, because there were not enough of people to appreciate its worth and support it. It was entitled the *Parliamentary Remembrancer.* It was the practice of the conductor of that work to enrich it by the most curious and ancient sayings of eminent jurists and legislators. But it was his invariable practice never to make a quotation until he had actually seen it in the original. If the remark occurred to the memory, and could not at once be verified, it was deferred, however apt and pertinent as an illustration it might be, until it could be personally verified. Such a writer could always be read with profit, trusted implicitly, and quoted in debate with the certainty of indisputability. We remember on one occasion being present at a Committee of the House of Commons, when the accuracy of the records of the House was in question. The most eminent authorities on Parliamentary procedure were upon the committee. The editor of the *Parliamentary Remembrancer* was under examination. He had asserted that the divisions of the House were frequently and seriously wrong; sometimes fewer members and sometimes more were declared by the Government to have voted than did actually vote. "How do you know this, Mr. Toulmin Smith?" said Mr. Massey, who was then, if we remember rightly, Chairman of Committee in Parliament. "You are aware," explained Mr. Massey, "of our method of taking divisions. Every member gives his name; the clerk marks it off at the moment; every name is added up, transcribed, and printed. Where does error creep in, or how do you find out when it occurs? What means can you have of being more accurate than ourselves? You speak confidently that we are often wrong. Three or four votes wrongly recorded may decide the fate of a Government. We have every motive to be correct, and, if we are wrong, we cannot even guess how you discover it." The answer was this: "You are aware, Mr. Massey, that you print the votes every morning, and state the number of them. Well, I *count* them. In adding up the votes, the voting clerks often err, and thus I discover it."

This is why we wish, as we lately stated, that our consuls and secretaries of embassies and legations could be instructed to furnish particulars of the condition of the working classes in the respective countries in which our official representatives are placed. What are the chief trades of the working classes there — what rates of wages — modes of payment — hours of working — condition of habitations—industrial prospects, and degrees of social and political liberty enjoyed by them? The state of the labour market—emigration and importation of labourers—the health, and nature of clothing of the people, their education, and provident, or other habits, would be of great interest and value to the British labourer. A world of information, unknown and inaccessible—now, indeed, unconjectured—would in the course of a few years be at the service of the people. We have, in the interest of the working classes, put the matter into the hands of a Member of Parliament, and we shall, in due course, be able to give an account of the

MANUFACTURE OF PAPIER-MACHE.—THE STAMPING PRESS. (*See page* 202.)



MANUFACTURE OF PAPIER-MACHE.—THE ROLLING MILL. (*See page* 202.)

result. We pay out of our taxes a considerable amount of money to support representatives of the Crown and commercial interests of Great Britain at foreign courts and in foreign countries, and the result is neither so conspicuous nor so varied or valuable as may be desired. We are sure that the uses of our legations and embassies would be increased, were they to undertake the kind of duty we have indicated.

Industrial Exhibitions are daily increasing. We have had International Exhibitions, but what have they been, compared with what they will be when we know the state and character of industry in every part of the world, and international communication is established amid them? Then we shall have International Exhibitions worthy of the name. This very week there is announced an International Society of Artists, Limited, on the Co-operative principle. Co-operation is to be applied to art. To what may it not be applied? The prospectus, which has an elevation of thought more than English,

observes that "Art knows no frontier." We may add—Industry knows no frontier, but it has hitherto had a very narrow frontier in Great Britain, whether it has "known" it or not; and by the plan we recommend, if the Board of Trade will acquiesce in it, and the Foreign Office will concur, the frontiers of industry will be abolished, and there will be universal knowledge circulating and universal intercourse existing—that indispensable precursor of universal good-will among all the sons of labour.

The Papier-Mache Manufacture.

The manufacture of papier-maché is a department of art industry of comparatively recent introduction into this country, although in France it is known to have existed for more than a century and a half. It was first practised in England during the latter part of the last century, and was used principally in the making of heads for dolls. In Germany it was first practised by one Martin, who followed the occupation of a varnisher. He went to Paris for the purpose of learning the different processes of the manufacture, after which, returning to Germany, he set up an establishment for the making of papier-maché snuff-boxes. These snuff-boxes became so popular that they were generally known as "Martin's." The importation of papier-maché goods from France into Prussia was at one time so extensive that Frederick II. conceived the idea of establishing a manufactory in Berlin. This he carried into effect in 1765, and with such success that several other German states speedily followed the example. The articles originally produced were of an extremely simple character, the processes being of the rudest possible character. As the adaptability of the manufacture to other purposes than the production of snuff-boxes, tea-trays, and similar articles became better understood, fresh branches of the art were commenced, these ultimately becoming of more importance and value than the parent manufacture.

Papier-maché is made in two different ways. The first is by pasting sheets of paper closely together upon models or in moulds. This method is employed principally in the manufacture of tea-trays, tables, snuff-boxes, and other articles intended to undergo the process of japanning. The second is by pressing paper pulp into moulds and subsequently baking them. This latter process is the most important and artistic of the two, and is resorted to for the production of mouldings, fretwork, rosettes, cornices, and other architectural ornaments; also pilasters, capitals, and even figures as large as life. The advantages possessed by articles made of papier-maché, or its kindred substance, carton-pierre, consists in their being lighter, more durable, and less brittle than if made of plaster of Paris; consequently, ornaments made of papier-maché or carton-pierre are in continual demand for the decoration of public buildings, the higher class of mansions, &c., holding a somewhat similar relation to the ornamentation of *interiors* which terra-cotta bears to the ornamentation of *exteriors*.

One of the most extensive papier-maché works in the kingdom is that belonging to Messrs. George Jackson and Sons, Rathbone Place, Oxford Street, London. It consists of an extensive range of workshops and offices, in which about 300 hands are continually employed. The majority of the workmen belong to the highest skilled class, many having been trained in the establishment; and it speaks well for the state of relations subsisting between the heads of the firm and their work-people that not a few of the latter should have been in the establishment almost from their very boyhood.

The papier-maché is prepared by boiling paper slips until they are reduced to a pulp. This pulp is then carried to the rolling-mill, where it is rolled into sheets of a uniform consistency. These sheets are taken to the moulding-room, which presents a busy scene, being crowded with workmen and youths actively engaged in moulding the pulp into the required forms. This is effected by first preparing a "backing" of coarse pulp; on this a piece of brown paper of the requisite size is placed—this, in its turn, being covered with a layer of the finer description of pulp. The mass is then closely pressed together in the metal moulds, by means of a powerful press, the power of which is calculated at from 30 to 40 tons. From the press, the moulds are taken to the oven, where the papier-maché is thoroughly dried, after which it is taken out of the mould, pared, trimmed, touched up, and again placed in the mould and re-dried in the oven. This process is again repeated once or twice, after which the papier-maché ornament is ready for use.

Carton-pierre is made in a manner similar to that of papier-maché, but is produced from coarser materials. It is pressed by the fingers of the workmen into the moulds, which are sometimes of wood, sometimes of metal. Wire and other materials are used for strengthening it where necessary. Unlike articles made in papier-maché, those formed of carton-pierre require only one baking in the oven.

Composition articles are prepared in a somewhat analogous manner. The composition is prepared by kneading together certain proportions of whiting, melted glue, resin, oil, and other ingredients, until the whole forms a soft but tough mass. Should it become too hard for use, it is steamed, by which means it becomes moistened, and more fit to be moulded into shape. The moulding process is not much unlike that adopted in the production of articles in carton-pierre. After being taken out of the moulds, they are sent to be trimmed up and finished.

The number of moulds used is very extensive, and must amount to several thousands, a separate mould being required for each pattern produced. Where the design is one in frequent use, several moulds precisely alike are used. The mould-making is a distinct branch of the manufacture. The design is first drawn on paper, and then modelled in plaster of Paris; a cast is then taken of the model, and by means of this a metal cast is obtained. Where wooden moulds are required, they are cut in accordance with the models furnished.

The artistic skill and talent employed in the production of the designs is of the highest possible order, and it is a matter of some national interest to find that nearly all the art-workmen in the employ of the Messrs. Jackson are of British origin, thus, to some extent, refuting the popular fallacy, that in this country art manufactures cannot be successfully carried on without the assistance of Continental artisans. As before observed, most of the workmen have received their training in the establishment itself. They appear to be a most intelligent and industrious body, and the ease and celerity with which they get, through their labours is indicative of their skill and experience.

In the carpenters' shops, a number of workmen are industriously engaged in preparing wooden frames, panels, and other articles intended to be decorated with ornaments in carton-pierre or papier-maché. In another portion of the building, workmen are preparing backgrounds in plaster of Paris for a similar purpose. Here, too, portions of large ceilings are being manufactured in such a way that they can be easily put together. These ceilings are made of plaster of Paris, strengthened with canvas and, where required, with wood. The lightness of the articles thus made is extraordinary, and explains the secret of their adaptability for ceilings and like purposes.

The papier-maché or carton-pierre designs are affixed by means of glue to the article intended to be ornamented. This is a description of labour requiring considerable care and tact, many of the designs, when complete, being of an extremely elaborate nature. When the article, say a picture-frame, has received the finishing touches, it is allowed to thoroughly dry, after which it is ready for use, and, if intended to be gilded, is taken to the gilding-shops.

In the designers' room the designs are prepared on paper for the use of the modellers, who have rooms to themselves, where they can labour undisturbed in the production of the various beautiful and graceful ornamental decorative designs, which have tended to enrich so many interiors, not only in this country, but in various parts of the world.

A stroll through the show-rooms shows the vast number of purposes to which the use of papier-maché and carton-pierre can be applied. Here are statues, life-size; picture-frames, panels, cornices, brackets, rosettes, pediments, fretwork, mouldings, heraldic shields, articles of furniture, portions of proscenium for theatres and music-halls, pilasters, and an immense number of similar objects, the greater portion of which display an amount of really good design and taste highly encouraging to those who desire to behold the successful development and prosperity of the various branches of art industry in this country. Indeed, the reputation of the Rathbone Place establishment is so widely spread, that orders are continually received from the Continent, one of the most extensive works undertaken by the firm being the production of the whole of the magnificent decorations used in the interior of the Malta Theatre, which is stated to be one of the most splendid in Europe.

PRIZES FOR ART-WORKMANSHIP.

On Wednesday, the 21st instant, the ceremony of distributing the art-workmen prizes of the Architectural Museum, late of South Kensington, took place in the theatre of the Geological Museum, Jermyn Street. Mr. J. B. Beresford Hope, M.P., presided. The body of the meeting consisted almost entirely of those who were evidently of the workman class. The chairman, in opening the proceedings, touched upon the present position of the Architectural Museum with regard to its separation from the Kensington Museum, the removal being caused through the "boilers" coming down; and he informed them an intimation had been given that there will not be room in the proposed new buildings for this collection; and he urged all the friends of architectural art to assist in securing a site for the museum. He dwelt upon the fact that the great purpose of providing architectural art-culture was left in the hands of a few private individuals, and he was of opinion that it was a branch which the Government might well have undertaken. He then proceeded to speak of the relationship of art to the increased comfort of the people, and pointed out that the people, by the exercise of art, had better homes in the way of furniture, and at no greater expense, than they used in times before art-workmanship had so far advanced. He expressed his earnest desire that art-workmen should receive the honour of their skill, and not that the employer should have both the profit and the honour; and he thought that if the names of the workmen were given in meritorious works, it would be an incentive to men to push on. He then described the various works and prizes. The council of the Architectural Museum had offered three prizes for stone carving—the first of £20, the second of £5, and the third of £2, for the most successful carving in stone of a subject from Flaxman's illustrations of Dante, entitled "The Triumph of Christ." There had been six competitors, and the council had given an extra prize, because they considered four of them were worthy of prizes—three in marble and one in white lias stone. The one to which the first prize had been given would be "caviare to the general," for it was a specimen of real low relief, and not of low high relief. It was in marble, and it turned out to be the work of Arthur W. Harris, of Ryde, Isle of Wight, the son of a watchmaker, who, judging from a letter he had written to the council, had the true instincts of art in him, for this was his first attempt. The second was by John Seymour, of Tower Lane, Taunton. In wood-carving no prizes had been given because the conditions had not been observed in the specimens sent in; but to one, a work by Mr. Wormleighton, at Mr. Roddis's, of James Street, Birmingham, a supplementary prize of £10 was awarded for excellence of carving. A prize of £15 had been awarded to Mr. Holliday, a workman in the employ of Hunt and Roskell, for the best head taken from the reduction of M. Brucciani's statue of Germanicus, to be modelled in *repoussé*, or bossed-up silver. The second prize of £5 was given to Mr. Frantzen, of King Street, Clerkenwell. Prizes for translucid enamels, being a reproduction on a flat "plaque" or plate of silver, of the figure of St. Barbara, ascribed to Nino Pisano, were awarded to Frederick Low, of Wilderness Row, and H. de Koningh, of Dean Street, Soho; and the winner of the first prize was also awarded a £10 prize for opaque enamels. A prize of £10 was awarded to George Rooke, of Bywater Street, Chelsea, and prizes for modelling in clay, the subject being "Alfred harping to the Danes," were awarded to R. W. Martin, of John's Terrace, Walworth Road, and J. W. Gould, of Bayham Place, Camden Town. Several interesting speeches were delivered on the advance of art, and the benefits to be derived both by individuals and the country by its culture. A very cordial vote of thanks was passed to the chairman, whose attachment to art was warmly acknowledged by all classes present. The vote was acknowledged, and the proceedings terminated.

Education in the Nailing Districts.—An effort is about to be made to bring the educational clauses of the Factory Act (shortly to be brought before Parliament) to bear upon the nailing districts, if possible. A public meeting was held recently, when the chair was taken by Lord Lyttelton.

A Successful Co-operative Store.

BY A BRIXTON CO-OPERATOR.

The causes of the failure of some of the Co-operative Societies in London have long occupied the attention of the thinking portion of the working classes. That they have failed is unquestionable; but the reasons of their failure is not so clear. There may be certain conditions, essential in a great city, under which Co-operation cannot succeed. Upon this subject, however, I shall express no opinion, hoping to see the question settled authoritatively in those essays for which the conductors of the Working Man have offered such handsome prizes. That the great principle of Co-operation can and does succeed in the suburbs of London, and that in no questionable manner, it is now my purpose to show by the example of the Brixton Co-operative Industrial Provident Society.

This society, which is now in a very flourishing condition, has been in existence about four years, having been established in the spring of 1862. Like the oak, the germs of whose giant branches were once contained in the acorn, it had a very small beginning. Some few working men of Brixton and its neighbourhood having got hold of a copy of that excellent publication, the *Co-operator*, naturally thought that that which had effected so much good for Rochdale could not be of much harm to Brixton. Accordingly, a public meeting to discuss the subject of Co-operation was held, a society was formed, and about 200 persons enrolled themselves as members. Of this number, however, all did not take up shares. On the first night for receiving subscriptions on shares the amount paid in was somewhere about £73. This sum was soon increased to a little over £100; and we then thought ourselves justified in commencing business, considering the amount of our capital ample. Of course we were treated to the usual amount of ill-natured criticism from all those of our class who, being without the will or desire to help themselves, consider those who wish to improve their condition as fair marks for their pot-house wit. The tradesmen of the neighbourhood were not behind-hand in their sarcastic remarks. Some of them kindly offered us £10 for our stock and good-will in trade; while others of them considerately warned us that if we persevered in our mad career we should all be insolvent in a month. It was not without some little misgiving that we commenced business. We had no fear of the result, providing all were in earnest; but we feared the lukewarmness of some, coupled with the open hostility of others, might prove more than a match for us. However, all our fears were soon scattered, for we promptly learned that it was not customers, but capital, that we stood in need of. In a word, we found our small capital of £100, which we had fondly counted sufficient, utterly inadequate for our wants. We could go to market only in a hand-to-mouth manner, and thus were debarred from the advantages which a larger capital would have given us. This state of things soon produced its own remedy, for those who had hitherto held aloof from us—the timid waiters on success—now finding which way the current had set in, came and took up shares, and so placed in our hands increased capital; and such increased capital gave us, of course, increased facilities for business. Our number augmented, indeed, to such an extent that we required more accommodation, and we found it necessary to enlarge the shop that we had taken. From that time to the end of the year all went well with us; and at its close, after about eight months' business, we found that our members had increased to 216, while the amount we had received on capital stood at over £300. We had done business to the extent of £2,124, and our gross profits amounted to £220 and some odd shillings. We had every reason to be satisfied with our first year's venture.

With the following year (1863) came increased prosperity. All were enthusiastic in the work; committee-men gladly gave up their time to promote the interests of the society; our members were banded well together; and the officers of all kinds worked with might and main. When we first started at Brixton we counted amongst our members several who resided at Streatham; these had gradually introduced others, until we considered that we had a sufficient nucleus at Streatham to start a branch store. This we accordingly did, upon a very small scale, in the summer of 1863, and we have since that time had no reason to regret the step we then took. Our business at Brixton had increased, was increasing, and promised yet further to increase to such an extent that our place of business was again proving insufficient for our requirements. We had started a clothing store, and it fared with that as with the provision store. All went prosperously with us, and at the close of the year our numbers footed up 464, having more than doubled in the course of the twelvemonth; while the capital they were possessed of stood at £1,300 odd, showing an increase of more than £1,000 during the year. We had, during the same period, transacted business to the extent of nearly £7,000, yielding a gross profit of about £950.

The year 1864 proved an eventful one in our history, for it had not grown very old ere there occurred an unfortunate division in our ranks. It was patent to all, and had been so for some time, that something must be done for the better accommodation of our ever-increasing business. All were agreed as to that; but all were not so agreed as to the proper means of doing that something. Two courses were advocated; the one, to remove to what was considered by some a more advantageous position, and erect new stores, at a roughly estimated outlay of about £2,000; or, on the other hand, economise our capital, by remaining where we were and enlarging our then existing premises, at a calculated cost of a little over £120. This was the rock upon which we split. Parties were about equally balanced, and, as it was provided by our rules that in any such case a general meeting of the members should decide the disputed point, a general meeting was called, and upon the decision at which the collective wisdom of all our members should arrive depended the settlement of the question. Party feeling ran high; the advocates for the enlargement of the existing premises used all their persuasive powers to induce members to support them upon a division; while the opposite party, who struggled for removal and the erection of new stores, were not behind-hand in their blandishments. The important night of decision arrived, and, after a lengthened debate, in which the arguments pro and con. were ably sustained, "the House" divided, when there appeared that 163 members advocated the enlargement of the then existing premises, while 157 were of opinion that the interests of the society would be best served by removal and the erection of new stores, giving the former a narrow majority of six. Besides the members who voted, there were, however, several who remained neutral. In consequence of this result, about forty members, refusing to be bound by the decision of the majority, seceded, and started a new store in the particular neighbourhood for which they had so strong a predilection, some short distance from the old one. May they prosper as we have done! Notwithstanding this unfortunate split, however, our numbers at the close of the year had increased to 600, and our capital was fast approaching £2,000; while the amount of money received for goods during the year had reached the not insignificant sum of five figures, being represented by no less an amount than £10,425. Of course, with this increased business, our profits increased in a proportionate degree, and we found ourselves credited under this head with a sum of £1,400 odd, out of which amount, after paying our expenses, we devoted £62 to interest on capital, placed £32 to the credit of the reserve fund, and divided nearly £800 as bonus among our members.

During last year we still continued on our prosperous career, and found our enlarged stores, which now consisted of four houses, none too large for us. We also opened a second branch store at North Brixton, and our Streatham branch having outgrown the limited accommodation provided for it, we decided upon erecting new stores in Wells Lane, upon a piece of ground which we took upon liberal terms from the rector on building lease. This store we inaugurated at the beginning of the present year, and it is now in active operation, doing a very remunerative trade. At the close of our last quarter, on the 28th of December last, our numbers had increased to 765, possessing a capital of nearly £3,000, and during the year we had transacted business to the tune of over £13,000, yielding a gross profit of £2,150, out of which sum we paid £91 in interest on capital, added £34 to the reserve fund, and distributed as bonus nearly £1,200. From the commencement of the society to the close of last year it has paid as interest on paid-up shares £186 18s. 11d., and in bonus on members' purchases £2,655 9s. 7d., making a total net profit of £2,842 8s. 6d.

This year, so far as it has at present gone, we have met with more than our usual success. Finding butchers' meat so extravagantly high in price, we determined on applying the principle of Co-operation to that also. Consequently, at the end of January, we started in that line in a small way, for we always begin to crawl before we essay to stand. Since that time the business has steadily progressed, and though we at present labour under many disadvantages, our average receipts now amount to nearly £50 on a Saturday night, and nigh upon £100 for the week; and these amounts are continuously increasing. Within the last few weeks we have opened another branch store, making the third, at Balham, and this promises to rival, if not surpass, its elder branches. The takings at this branch already exceed £50 a week, and this for a small suburb like Balham cannot be considered at all unpromising. Since the close of the last quarter, our numbers have increased from 765 to over 1,000, and the business we are now transacting is at the rate of from £20,000 to £25,000 per annum. There are many other interesting items which I could furnish did space permit—amongst other things, the manufacture upon our premises of boots and shoes, &c.—but I refrain, and I think all will agree that if our society is one of the youngest, it is one of the most active and vigorous, and therefore one of the most successful, of all Co-operative Societies.

In conclusion, I think all will agree that the facts I have stated, and the figures I have given, are conclusive evidence that Co-operation can be made successful in the suburbs; and if successful in those suburbs lying so close to London as Brixton, Streatham, and Balham, why not successful in London itself? Surely it is worth a fair and open trial. We Brixton Co-operators are all agreed that the publication of this simple narrative in such a widely-circulated and influential organ as the Working Man, would have the desired effect of giving an impetus to the cause of Co-operation in London—a cause, the success of which, especially at this time, all working men should have deeply at heart, for Co-operation implies needful combination, and combination gives power; and with such power what might not the working men of this kingdom accomplish for the elevation and happiness of their class, the progress and purity of government, and the advancement and prosperity of their loved native land?

Fire-damp.—Mr. G. F. Ansell exhibited in one of the committee-rooms of the House of Lords, a few days since, an apparatus of very simple construction, whereby a sudden outburst or gradual accumulation of gas in a mine would give almost immediate warning of its presence. The instrument exhibited was formed, in the first place, of a glass flask six inches in height and two in diameter. Its top was tightly covered by a piece of common red tile, and from its bottom went a narrow tube, which, being bent upwards, rose to double the height of the flask itself. Mercury was lying in the bottom of the flask, and, of course, to the same level in the tube also. In the upper part of the narrow tube were the projecting ends of two isolated wires, connected with a small galvanic battery. This forms the whole apparatus, and we may suppose that the flask is placed in a part of the mine where some men are at work, while the wires could be extended to the top of the pit, and there be connected with a battery and bell. If, while the men were working, a small or large quantity of gas were suddenly disturbed, some portion of it would percolate through the tile and gather in the flask with remarkable rapidity. There it would press the common air upon the mercury, and induce it to rise in the narrow tube until it reached the wires. Immediately the mercury touched them the galvanic current would be complete, and the bell would be set ringing. This warning would be given in less than two seconds from the time the gas made its appearance; and another instrument, designed upon the same principle, would give warning of a gradual accumulation of gas when it had become dangerous. Mr. Ansell also shows an instrument a little larger than a watch, and constituted upon the principle of the common barometer, which the mine viewer could take in his hand; and if, in the course of his passage through the mine, he came upon any place where the atmosphere was charged with even one per cent. of gas, the instrument would register it.

Things Talked About.

The evidence given before the election committees shows that—in some places, at least—bribery and corruption flourished at the last general election. It would be most unfair, however, to suppose that the voters belonging to the working classes were exclusively the objects of the attention of the "strangers" and "dark men," who slipped bank notes into the hands of voters only too willing to be corrupted. Tradesmen and men in comfortable middle-class position were, if their own admissions may be believed, quite as ready to take money—in some instances, from both sides at once. We do not believe that the proposed addition of a few hundred thousand working men to the constituencies would materially add to the number of those who are willing to sell their birthright for a miserable mess of pottage. But the *Times* is doubtful on the subject, and half prepared to be afraid of the admission of a few more artisans to the franchise. In a leader, it asks a series of questions, which we have little hesitation in answering in the affirmative. "As the elections were not, on the whole, the work of bribery, intimidation, and other evil influences, however much there may be of these things, it follows that there must be a strong countervailing effect in the good sense and independence of a very large portion of the constituency. But let us suppose that in as many as fifty or even a hundred boroughs the majority be handed over to a lower class. Will it be found as substantial as that above? Will it contain as many men able to have their opinions, and to hold their own in the face of wealthy customers, tyrannical landlords, importunate neighbours, and the dictation of the society, the club, the public-house, or the mill? Is the proposed class strong enough to stand its ground? Let it be ever so educated, let its aspirations be ever so exalted, let it be ever so admirable and interesting in its own sphere, has it stability and self-reliance enough to be depended on as the principal basis of the Constitutional system?"

Sir James Kay-Shuttleworth, who probably understands working men better than the *Times* writer, has little doubt upon the subject, and would answer their questions as readily as ourselves. A few evenings since, he addressed the Kendal Working Men's Club on the subject of "The Electoral Power of Working Men," and took occasion to express his belief "that if the working class possessed the electoral power, it would be exercised beneficially for the removal of every remaining obstacle to a universal provision of elementary education for the children of all persons supported by manual labour, in favour of sanitary reform, and in resisting all the selfish encroachments of capital on public convenience or private rights."

The Wigan Relief Committee has held its last meeting, and has a balance in hand of £82 to dispose of, so nobly was the cry of distress responded to. In the course of 180 weeks, or about three years and a half, the committee dispensed in relief the sum of £78,878, and all within the town and immediate neighbourhood. There is a gratifying paragraph in their report:—"The condition of the factory population is now most satisfactory, the scale of wages being in most departments higher, and in none lower, than it was before the cotton distress. The number of operatives now at work is about 6,000; but there are still several of the large mills standing, which, if they were at work, would employ at least 2,500 hands; and of those that are working, some are doing so with only a short supply. The large mill in the Mesnes will require, when it is in full operation, quite 1,000 hands; so that the prospects of the cotton operatives cannot but be regarded as most favourable." With regard to cotton especially, we hear of magnificent prospects opening to commerce:—"Three years ago the first planting of cotton took place in the Brazilian province of San Paulo without attracting attention. The attempt has succeeded so well as to induce a Liverpool Brazilian Steam Company to extend their trips to Santos, the chief port of that district, with the view of taking in a portion of the quantities now offering as cargo. By next midsummer a line of about eighty miles will penetrate from Santos to the interior of the province of San Paulo, and will not only facilitate the export of the new article, cotton, but will open up one of the finest coffee-growing districts in the empire. In Mexico, the line from the port of Vera Cruz to the capital is in rapid progress; and in the Argentine Republic one line of about eighty miles has just been opened, with results that promise almost immediately to enable the company to dispense with the Government guarantee of 7 per cent., and another of 240 miles is already nearly half completed."

In the Paris Exhibition of 1867, a space of 93,000 square feet is reserved for British exhibitors, and that, we are told, is considerably less than one-third of the accommodation asked for; and yet, it is nearly one-third of the whole available space: so that British enterprise would willingly occupy the entire building! Not quite behind yet in the industrial race of nations.

We have before us a temperate and well-written pamphlet, by "Incognito," on the "Relations between Masters and Men." It advocates the allotment of a portion of property to the men employed in a large concern, over and above the fixed wages, such allotment, however, to depend upon good conduct. The author predicts great results from the adoption of his proposition. But there are two sides to the question, and we admit that we prefer the shareholding on the limited liability system adopted at Messrs. Greening's works at Manchester, recently described by us.

Government has introduced a bill for the preservation of the commons and open spaces within a radius of fifteen miles around London from encroachment. Few of us, perhaps, were prepared to hear that, within that distance of St. Paul's, there are 180 commons, the gross area of which amounts to 10,500 acres, equal to about one-eighteenth of the entire county of Middlesex, and to which the people have a clear right for the purposes of health and enjoyment. But such is the case, though what it might be in a few years, if the continual "nibblings" now indulged in were permitted to go unchecked, no man can say. The Government measure proposes the formation of a Commission, with ample powers to make rates for drainage, keeping in order, and other purposes. Mr. Cowper, the First Commissioner of Public Works, truly said, when introducing the bill, "The maintenance of the commons round London was exceedingly important for the preservation of the health, and for the enjoyment of the people. London was not merely the habitation of Londoners, but of persons devoted to science and art, who came up from the country; and anything which contributed to the health and salubrity of the metropolis was therefore a matter of national interest and importance. In proportion as the great Babel was travelling into the country, these commons and open spaces became more valuable, particularly when railways and building speculations were more and more menacing them with utter extinction."

A pamphlet has just been published by Mr. Augustus Smith, M.P., the "Lord of the Isles," who so gallantly summoned his merry men to throw down, by moonlight, the railings with which Earl Brownlow had enclosed, for his private use, a large portion of Berkhampstead Common, which some of his neighbours, rich and poor (Mr. Augustus Smith among the number), thought was quite as much their property as his. Mr. Smith prints the correspondence which has passed upon the subject, and, to the public at least, satisfactorily justifies the propriety of his summary act. Not only did the earl take possession of a large portion of the common, but, in so doing, blocked up highways, forcing wayfarers to make a circuit of several miles. Mr. Smith justly says:—"So outrageous an infringement of public rights of highway (which, irrespective of the parish convenience, are important for all places within a circuit of ten miles at least), I venture to say, has not been perpetrated by any lord of a manor in the present century, while the attempt to overbear and oust commoners from their rights by the mere local weight and influence of territorial possessions, I will also venture to say, has equally no parallel, coolly dispensing as it does with all those forms and notices which the law has provided for regulating and carrying out such transactions, while all those observances have been equally ignored which usually characterise the conduct of gentlemen in dealing with their neighbours."

The venerable Lord St. Leonards, once plain Edward Sugden, a poor working boy, has introduced into the House of Lords a Bill to establish Councils of Conciliation, for the purpose of ending disputes between masters and operatives. A very large body of working men, we are told, are in favour of the Bill.

We are very glad to see that the Islington Vestry is determined to enforce the provisions of the Act for the Better Local Management of the Metropolis and the Nuisances Removal Act, by compelling owners of small house property to attend to sanitary requirements, and prevent overcrowding. Several such owners have been fined, and the sanitary inspector is still hard at work. Six or seven persons sleeping in one small room, thirty or more in one small house, damp floors, fever, and high death rates, are among the evils the vestry have to do battle with. An inspector has died from fever caught in the performance of his duties.

Co-operative Intelligence.

Easington Lane Amicable Industrial Society (Limited).—The members held their fifth half-yearly meeting, in Mrs. Bewick's school-room, on the 17th inst., Mr. John How, president of the society, in the chair. The committee's report and balance-sheet for the half-year ending March 3rd, which was read by the secretary, Nicholas Lee, and unanimously adopted, showed a very encouraging increase of business. During the half-year, six new members had joined the society, and six had withdrawn. The sales amounted to £895, being £225 in excess of the previous half-year. After payment of working expenses, which, at present, are unavoidably heavy, and other charges, and five per cent. interest on capital, a surplus was left, which enabled the committee to pay members a dividend of 8d. in the pound on their purchases, and leave a balance in. "We hope," writes the secretary, "that against our next half-yearly meeting, we will have to report a large increase of business, and, also, a large accession of members. This society has had many drawbacks since its commencement, as is often the case with Co-operative Societies in their infancy, when experience has to be bought at a costly rate. We trust that this disciplinary process will greatly aid our future development."

General Information.

CLUBS AND INSTITUTES.

The Bedford Institute Working Men's Club, Wheeler Street, Spitalfields.—This club commenced 18th December, 1865, when seventy members were enrolled the first evening, and up to 19th March, 1866, the number of members on the book is close to 450. The committee have been engaged in organising discussion meetings, harmonic gatherings, a singing class, and an elocution class. In all these projects a lively interest is taken by the members, and already a deal of good has been produced. The refreshment-room of the club is open in the morning for the purpose of providing early breakfast, and a considerable number of the working men of the surrounding neighbourhood have availed themselves of the nice, clean, warm, comfortable room placed at their disposal. The attendance has become so large, that the committee have had to increase the ways and means of supplying them. The secretary says:—"As regards our finances, we are (thanks to a few friends who assisted us at starting) placed on a sound footing, and we shall, at our present rate of progress, shortly be in a self-supporting position."

Southwark Working Men's Club and Institute.—On Wednesday last, the members of this club gave a free entertainment to their friends and neighbours, at the Lambeth Baths, which were kindly lent for the occasion by Mr. Murphy. About forty of Messrs. Maudslay's artisans' brass band, with the hearty concurrence of H. Maudslay, Esq., gave their services gratuitously, and very efficiently performed various selections of music. Popular songs and recitations were given by several members of the club. Mr. S. S. Taylor, the president, remarked on the advantages within the reach of working men by greater union, and on the opportunities which clubs gave for united action, when seeking social elevation, self-improvement, or recreation. Mr. Symons urged his brother working men to give their cordial support to the institution, which, being entirely in their own hands, they could manage cheaply—admission, 2d. per week—and temper to their own tastes. Three cheers were given for Mr. Murphy, who came in, and spoke in favour of the Southwark Club. A vote of thanks was carried by acclamation, and the entertainment concluded with "God Save the Queen." The building filled at an early hour, and many were disappointed of admission. On Monday, April 2, there will be another meeting at Surrey Chapel, when the Rev. Newman Hall will preside.

Luton Working Men's Club and Institute.—The first half-yearly meeting of the above club was held, on Monday evening, in the Institute, King Street, John Everitt, Esq., presiding. There was a full attendance of members, and the following report was read by one of the secretaries:—"The committee, in presenting the first report of the Luton Working Men's Club and Institute, have much pleasure in testifying to the success which has attended their exertions since the opening of the club. The society was established with the view of supplying such material as would tend to the improvement and the enjoyment of the working men, to cherish their mutual helpfulness, to surround them with such elevating influences as go forth from similar institutions when well conducted, and to help them to obtain rational amusement and recreation. How far this object has been attained, may be gathered from the following few statistics, made from the opening of the club to January:—Number of weekly payments, 1,460—amounting to £12 3s. 4d.; monthly, 123—amounting to £3 11s. 9d.; quarterly, 185—amounting to £13 17s. 6d.; penny tickets, 538—cash value, £2 10s. 4d. Total, £31 7s. 5d. The total number of tickets sold for admission, to February 2nd (this does not include those persons who have patronised the refreshment department only), is 2,306. In addition to the provision made by the committee, the members themselves have instituted singing, elocution, discussion, and other classes; all of which work successfully, thereby testifying to the interest they take in the well-being of their club. They have, likewise, had a social gathering of themselves and friends, upon which occasion the members catered for the amusement of between 300 and 400 persons with great success. The committee are anxious to establish a library in connection with the club, and make an appeal for assistance in this direction, reminding the members that 'little helps, if rightly given, make the impulse stronger,' and that books are masters who instruct us without anger, and without pay. In conclusion, the committee would urge upon the members the necessity of their constant support and co-operation in promoting the welfare of the club, and extending its usefulness, that, under the blessing of Divine Providence, many may be benefited thereby."

WAGES AND SHORT TIME MOVEMENT.

Amalgamated Tailors' Societies.—As we announced last week, a conference of delegates from the various societies of journeymen tailors has been held at Manchester. It seems that the idea of forming an amalgamated society was originated in Manchester, and very cordially accepted by others. This will be seen from the fact that

delegates attended the conference from the following towns:—London, Liverpool, Leeds, Sheffield, Birmingham, Newcastle-upon-Tyne, Hull, Cheltenham, Leamington, Rugby, Wellsbourne, Sunderland, Derby, Bolton, Bristol, Bradford, Chester, Preston, Warrington, Oldham, Torquay, Wolverhampton, Darlington, Brighton, Wigan, York, Carlisle, Cambridge, Durham, Stockton-on-Tees, Stafford, Exeter, Scarborough, Stockport, Huddersfield, Bury St. Edmunds, Bury (Lancashire), Penrith, Bishop Auckland, Birkenhead, Barnsley, Padiham, Peterborough, Lancaster, Oswestry, Shotley Bridge and district, Rawtenstall, Hartlepool, Blackburn, Northwich, Malvern, Chesterfield, Crewe, Halifax, Chorley, Macclesfield, Kidderminster, Stourbridge, Dudley, Heywood, Runcorn, Dewsbury, Altrincham, Rochdale, Market Harborough, Wakefield. Letters approving of the amalgamation were read from societies in the following towns:—Lurgan, North Shields, Leicester, Blackpool, South Shields, Whitby, Croydon, Harrogate, West Hartlepool, Maidstone, Gloucester, Wrexham, Southampton, Horncastle, Londonderry, St. Helen's, Gainsborough, Maynooth, Bridgewater, Kendal, Barrow-in-Furness, Uxbridge, Glossop, Canterbury, Shrewsbury, Lincoln, Oxford, Bingley, Nottingham, and Truro. At the opening meeting, Mr. Green, of London, presided, and he stated that the conference represented more than 6,000 working tailors, one-third of that number being resident in the metropolis. The conference have met several days. At one of their meetings it was resolved that fifty-seven hours per week, to conclude at two o'clock on Saturdays, was sufficient labour, and that any work done over these hours should be paid for at the rate of "time and a quarter." It was further resolved that one uniform number of hours be paid per garment throughout the amalgamation; that the price per hour be left to each town; and that the executive council take means to procure the drawing up of a general log; "that we do not recognise day-wagemen;" that the subject of apprentices be referred to the consideration of the executive council, with a view to the possibility of developing some system to be suggested to the next conference. In the further sittings it was resolved that the national council should hold its sittings in Manchester, and that the secretary should reside in that town. Mr. J. McHugh was elected president; Mr. Green, of London, vice-president; and Mr. J. Glurrocks, secretary for the first year. It was resolved, "That inasmuch as the general wages of the country are, to a considerable extent, influenced by the rate in London, this conference recommend all delegates to impress upon their constituents to support the London operatives in their endeavour to procure an advance of one penny per hour." Another resolution was, "That the conference be held in London next year." It was further resolved, "That the conference recommend its constituents to give the Leeds operatives all the support possible in their endeavours to advance their list of prices and regulate their hours of labour; that the amalgamation will use its best endeavours to limit as much as possible out-working, and, where that cannot be avoided, will endeavour to procure higher prices to out-workers to counterbalance their extra expenses, to save them the necessity of working longer hours than those who work in shops; that the conference are of opinion that the men ought to get one-half of the work done by the machine." The last resolution, and the most important one, was, "That the conference are of opinion that recourse to the strike should only be an extreme measure, and cordially approve of the present effort to prevent strikes by establishing a council of arbitration." At the final meeting it was resolved, "That the conference recommend to employers the necessity of providing proper workshops, so as to preserve the health of their workmen; and consider that a good workshop should allow 1,000 cubic feet of breathing space to each man; should have side-lights, lime-washed walls, proper ventilation, and should also be provided with proper sanitary convenience and a supply of water, and should in no case be below the level of the ground on any side." The business was concluded by votes of thanks being passed to those gentlemen who had been most energetic in promoting the amalgamation.

Carpenters' and Joiners' Advance of Wages Movement.—A delegate meeting of the joiners of the metropolis has been held at the "Brown Bear" Tavern, Broad Street, Bloomsbury, to consider the propriety of enforcing the memorial for an advance of another ½d. per hour on the present rate of wages, making the payment for skilled workmen 8d. per hour. About 200 delegates were present, representing nearly every large firm in the building trade, and every large job now going on in the metropolis, comprising both society and non-society men; altogether about 5,000 men were represented. The delegate from Jackson and Shaw's firm was called to the chair. The chairman said every delegate present was aware that last year they had asked for an advance of ¾d. per hour on their then rate of wages, 7d. per hour, and that the employers, after a strike had taken place at Messrs. Cubitt's, had offered an advance of ½d. per hour, which was accepted by the men with the understanding that, as the ¾d. was refused, a memorial should be sent in to the employers giving six months' notice for another advance of ½d. per hour on the first Saturday in May next. These memorials were accordingly sent in, and the present meeting had been called to ascertain the opinion of the trade whether the prayer of that memorial should be enforced or not in May next. He was now ready to receive the reports of the delegates. Each delegate then gave in his report, stating the firm or job and the number of men he represented, with the feelings of the men as ascertained by shop meetings held for the purpose. From these reports it appeared that at least nine-tenths of the men were for standing firm, at all hazards, for the ½d. advance in May next, while of those who dissented, nearly all were willing to abide by the decision of the meeting. Officers were appointed, and other steps taken for effecting the object in view.

STRIKES.

Strike of Puddlers.—The puddlers at the Elsecar Iron Works, near Barnsley, have struck work. It appears, from the statement of the union men, that when the iron is in a suitable condition for working they are able to get out six heats each turn; but of late the iron has been so "grey," that they are only able to get five heats each turn. The masters pay 10s. per ton for the same quality for which, it is alleged, the puddlers of Manchester and other places obtain 14s. The masters now offer an advance of 1s. per ton, but the men stick out for 3s.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

MR. CLAY'S EDUCATIONAL FRANCHISE BILL.

To the Editor of the Working Man.

Sir,—I was pleased to see, in a recent issue of the Working Man, that you had consented to be the medium of ascertaining the opinions of the working classes relative to Mr. Clay's Educational Franchise Bill. Well, Mr. Editor, with all due deference to yourself and to Mr. Clay and his supporters, I beg to differ from you on this subject. I cannot conceive how an educational test would take among that class which it is intended for; but for myself and others whom I have had the pleasure of conversing with upon this matter, we should not approve of it, inasmuch as there are no means whereby we or others can arrive at safe and just conclusions upon political questions. And until politics are reduced to a *science*, on the first principles of which all classes of the community may expect to agree and come to right conclusions, we cannot see the propriety of placing the working class under an obligation which the middle and upper classes are not expected to submit to. Any one who can get and pay a £10 or £7 rental can remain as ignorant as he chooses. I am aware that Mr. Clay's Bill is not intended to supersede the present Bill, which may include either a £6 or a £7 rental, but to be an auxiliary step downwards. This we must believe to be generous and considerate for the working class; and I can assure that honourable gentleman that I believe he was actuated by the best of motives, and desire for the real interests and good of the class which he is desirous to raise politically, socially, and morally.

I will now state a few objections that are likely to be raised against the Bill. Mr. Clay intimated in his Bill that a person who could write from dictation correctly, and understand the four rules of arithmetic, or do a sum in the rule of three, should be entitled to a vote. A good many would consider that a political test would be preferable—say an examination in John Stuart Mill's "Principles of Political Economy" and Hallam's "Constitutional History of England;" while others would favour a mathematical, classical, theological, literary, or scientific test, which would be more useful in making us good citizens. When we look a little deeper into this subject, we find that all knowledge is relative; that we are all more or less ignorant. For instance, a mechanic knows something which a gentleman who has graduated at either Oxford or Cambridge does not know; but still this gentleman would, perhaps, know one hundred times more than the mechanic in history and literature, &c.: but would you give the same power of voting for M.P.'s to the mechanic as to him who knows one hundred times more? Then, again, in this age of education, you will find young men of eighteen years, and even boys of twelve and fifteen years, much better scholars than either their aged fathers or uncles. What should be done for them? And why not admit the ladies to the privilege of exercising their right of voting for M.P.'s, if education is to be taken as a sufficient test?

And then, again, if a thorough book-education is so essential to good government, why not have our government transferred either to Oxford or Cambridge? But what same man would think of such a thing? I, for one, would as soon trust the government to the instincts of people as do such a thing; for, when Oxford could boast of having a Gladstone, they, at the late general election, rejected him for a Hardy.

Again, what does the Opposition party mean, but that gentlemen educated in the same university, and passing their degrees successfully, come to quite opposite conclusions about government? One believes and votes uniformly for Lord Derby's Government, and the other uniformly against his lordship. Until the seats of learning can appreciate real worth, and keep them as their representatives, we shall be some time before we can understand the meaning of an intelligent voter. Education taught the greater part of the House of Lords to reject and throw out the Bill to repeal or abolish the paper duty *twice*. They passed the Bill when they were forced by public opinion. Education did not enable either the House of Lords or that of the Commons to see the necessity and justice of the repeal of the Corn Law duties, until public opinion and necessity compelled them to abolish that unjust tax. Nay, it is now much the same as it has been—neither House is willing to repeal the Game Laws. It is somewhat encouraging to see that the House of Commons has been able to pass the second reading of the Church-Rate Abolition Bill; but it is very likely that the House of Lords will reject it. Well, Mr. Editor, I have thrown out these objections, as the most plausible ones I have, though they may be very imperfect, to show that there are sometimes learned fools to be found, and that ignorance is not confined to the working classes exclusively. But what seems to me most essential now in voting is real *honesty and worth*; and I have not been labouring to prove that great learning is incompatible with honesty and worth. I do not believe that, if the working classes were all enfranchised to-morrow, we should be any the worse governed than we have been; although I do feel grateful for the many improvements which have taken place in my time, but should feel more grateful if I and my fellow-countrymen could be all recognised as political citizens of this, our much-beloved land. In conclusion, Mr. Editor, I cannot see that an educational franchise would be much, if any, improvement upon our present imperfect system; and I think that manhood suffrage is the most legitimate and constitutional plan for giving satisfaction to the working classes. I fear I shall have trespassed upon your time and space too far.—I remain, yours truly, A Working Man.

March 16th, 1866.

To the Editor of the Working Man.

Sir,—It was with a great degree of pleasure that I read of the introduction of Mr. Clay's Bill, and I heartily thank both him and Mr. Gregory for the many kind and generous things they said of the working classes during the debate.

I am a working man myself, and I have spoken to several of my class about the merits of the Bill, and most of them are much pleased with it; but they are such as the Bill would enfranchise.

But I must also tell you I have read the debate on the Government Bill, which I hope will meet with the success it deserves on the next reading. I consider it a good part of a good measure, the remainder of which I hope will come in due time. Some of the members would make the House believe that the working classes don't want reform, but I think Mr. Bright's speech was a very good refutation to such statements; and, besides, the working classes have neither time nor inclination now for agitation, and the great majority of the House are well informed with their views on Reform; so the people are waiting patiently to see what the House will do for them.

If both these measures should pass, the classes they will enfranchise will be sure to feel the responsibility they will have upon them, and that they have another important duty to perform; that the ties of relationship to their country and its institutions have been strengthened; that a barrier has been broken down, which has kept two classes asunder whose interests are identical, and which, to work well, must work together.—Yours respectfully,

March 20th, 1866. A Working Potter.

To the Editor of the Working Man.

Sir,—As a working man, I am one of those who heartily approve of Mr. Clay's proposed educational franchise. In *theory* I would go much farther; but the time does not yet seem to have arrived when anything like manhood suffrage could be safely worked, although in the next generation it may be more possible than it is at present. I think it only right that, in making such a great innovation as the extension of the franchise to us undoubtedly must be, some precautions should be taken that the proposed change should prove as beneficial as possible to us—that it be made a blessing instead of a curse. I have no fear for the more educated portion of my fellow-workmen, but I do fear lest the uneducated might, if suddenly entrusted with the franchise, be tempted to listen to the counsels of leaders whose objects are certainly not the promotion of our welfare.

Men who will make some little sacrifice to obtain the franchise deserve to possess it. Mr. Clay's Bill would bring the electoral privilege within the reach of every man who spent a portion of his time in self-improvement, instead of wasting it at the public-house. This is why I like Mr. Clay's Bill. It tells us that if we like to help ourselves we may have votes. That is only right. The reward is worth the slight sacrifice demanded.—I am, Sir, yours, &c., A Voice from the Board.

London, March 22nd, 1866.

REPRESENTATION OF WORKING MEN IN PARLIAMENT.

To the Editor of the Working Man.

Sir,—We have now another Reform Bill introduced into Parliament, but whether it will pass into law remains to be seen. Anyhow, the principal thing for the working classes to consider is whether it will bring them a fair share of representation. I think not. It will, I admit, give a great number of men a vote who have not had one before—viz., those who will come under the class of £7 and £10 householders. But, then, will it be a fair way to extend the franchise to those who are *not householders*, by limiting it to £10 lodgers?

There are two classes in this country—viz., householders, or, more properly speaking, those who rent or own houses and land, and those who do not, but are lodgers; and in this last class are the great body of working men.

The *Daily Telegraph* lately made the remark, that

the principal point of discussion, when the Bill came on for the second reading, would be to define who are the working men. But I do not think that need be the case, because the first class of persons above mentioned—viz., house and land owners and occupiers—are entitled to a voice in the government of the country, the expenses of which they contribute to in a direct manner by the payment of taxes, &c.; and then the other class—why, they are the working men. The one is the Capital of the country and the other the Labour, and what is one without the other? And, if property is represented, why should not labour be? In fact, Mr. Gladstone admits that himself, for he stated in Parliament that it was an error to suppose that a labouring man should not be deemed to have an interest in the well-being of his country. If the working classes are to be represented, it must only be on the condition of their being intelligent working men, and not according to the amount of rent they pay. For instance, I know a man—a steady, sober, intelligent, industrious workman; he is married, and has no children, and, for economy's sake, occupies one room, for which he pays 3s. 6d. per week. I know another man, equally as respectable, married, and has several children, consequently he wants more room, and therefore occupies two rooms, for which he pays 5s. 6d. per week; but he does not earn, by 5s. to 10s. per week, as much as the other man; yet the latter will come under the £10 lodger class, while the former will not. And, again, I know another man, equally intelligent as the other two, and quite as respectable a member of society, but *he cannot afford* £10 a year rent. Now why should not all of these men equally have a vote? Why should their different circumstances make any difference? If the rent a man pays shows the amount of property he owns, or his respectability, industry, intelligence, or the rate of wages he receives, let it, by all means, be a qualification for voting.

I have a few words to say now on the opposition to any extension of the franchise by members of Parliament, and I think I need only instance that of Mr. Lowe. He seems to think that the unrepresented class are everything that is bad: "If you want venality, if you want ignorance, if you want intimidation, if you want an impulsive, unreflective, violent mob, go to the unrepresented class." By this time I hope Mr. Lowe is ashamed that he ever uttered those words; if not, it is high time that the unrepresented class are represented, and men of a different stamp than he sent to Parliament to give a better character of the working classes. I, as a working man, will admit that such qualities do exist, but they are the exception, not the rule; and if Mr. Lowe was to go into the first large workshop he came to, he would be surprised at the intelligence instead of the ignorance. And if he would take the trouble to calculate how many weekly numbers of working men's periodicals and weekly newspapers are sold, and what the contents are, he would find that an immense deal of knowledge was sought, and bought, and understood, and he would have one great fact to put alongside of his charge of ignorance to compare with. But even if what Mr. Lowe said was true, perhaps, if the unrepresented were represented, they would be the better for it.

I have a few words, also, to say of Mr. Griffith. He is so afraid of the extension of the franchise that he considers it "expedient to confer a plurality of votes on the superior class of voters, in such proportion as will be calculated to redress the preponderance of a single class of voters over the majority of the property, intelligence, and education of the country."

I merely quote this to show the sensitiveness, and, I may say, the fastidiousness of some M.P.'s on this subject. But, sir, I think that if working men could be represented on the condition of their being steady, sober, industrious, intelligent men, instead of the amount of rent they may happen to pay, such members as the above will not have any need to cast such slurs on the working classes. Anyhow, if we cannot get, by Mr. Gladstone's Bill, what we expect, we must take it as it is—as what we can get—and be thankful for small things.—I am, Sir, yours, &c.,

Jas. Thos. Rhodes.

TRADES UNIONS.

To the Editor of the Working Man.

Sir,—Allow me, in the first place, to inform you that I am a working man—an operative house-painter. I have read, with some degree of interest, your article under the head of "Trades Unions: their Limited Sphere," and can testify, from experience in my own line of business, and from the observation of others, to the accuracy of some of your remarks. Although there are some of the doings of Trades Unions not by any means commendable, but which, under certain circumstances, seem justifiable, particularly considering the element they have to contend with, yet, if their wrong doings are balanced against the good they have effected, both pecuniarily and socially, I think the judgment will be given in favour of Trades Unions. Your opening words, "that there never was an invention more natural or more defensible," is true, beyond a doubt; and was, and is at the present time, the most reliable means they have at their command—their strongest and most potent layer, whereby they have lifted themselves in a body to a social standing among trades, and are daily protecting the few privileges that custom has handed down to us, and increasing other little benefits of more or less importance. True perseverance, intellectual pursuits, and education may raise one, two, or a dozen in a trade; but the body, or the greater portion of them, would be left as mere drudges, were it not for the combinations that exist, and their determination to emerge all together, as a class, to one position. Then, again, the concluding part of the sentence previously quoted—"at the same time more crude and impotent"—needs a great deal of consideration before being accepted as perfectly correct, from more than one single point of view. It may have been very "crude" in its origin and birth; and what movement, society, or institution of any kind is not? It may be somewhat crude still; and that is the only thing that can possibly and fairly be advanced against its advocates; and, when that is admitted, some allowance can be made for some of the little acts that affect their honour as working men—more so when we consider that the employers whom they have to contend with are not over nice or scrupulous as to points of honour themselves. Consequently—not that I justify the means—they fight them with similar weapons. But if we carefully examine the system on which Trades Unions conducted their business some years ago, and compare it with recent improvements, and knowing what was considered their agressive tendency has now been brought within the meaning of the Friendly Societies' Act, even that objection can be considerably modified; and, as a greater proof of their increasing maturity, I may add that the plan that Trades Unions adopted in times past was to "strike when the iron is hot," or, in other words, watch the most favourable opportunity, even to the risk of ruining their employers and damaging their own personal interests. But now intelligence has superseded the old dogma; and if they find themselves suffering under any grievance, or their growing wants demand an increase of wages, they meet together and discuss the question *pro* and *con*, and give a limited notice of their demands, or the concession they wish to have made to them; and, if resisted or disputed by their employers, cases have been known that they are willing to submit it to arbitration, which, I think, is a point of honour gained, and proves that it is attaining maturity.

As to their artistic character, that has been explained already in your columns, by a correspondent signed "A Moulder."

Then, again, arises the question of their impotency. Now, it is pretty evident that working men generally squander nearly one-third of their earnings on things little better than useless. They are more or less open-hearted and sympathetic to those of their kind in distress, giving their mite to objects of philanthropy; yet, moreover, very suspicious of being cheated; but, as far as my knowledge of working men extends, I never find them in the habit of contributing two or three pence per week towards the support of Trades Unions without first clearly seeing and understanding the benefit that is likely to accrue therefrom. Then the fact that hundreds and thousands of working men of different trades throw their quota into the funds, and that hundreds of these societies are already in existence, and are daily increasing, with more objects than their personal independence and pecuniary benefit in the shape of wages; then the knowledge that these Trades Unions are the means of maintaining the few privileges they already possess, and that they have been the direct means of obtaining an advance of wages, which the necessities of the times require; reduction in the hours of labour, which the artisans of England stand in just need of, as well as those in a higher grade of life; the abolition of three-quarter time—a system truly obnoxious to all true working men; payments in public houses—monthly payments, which oftentimes increased a quarterly debt—and the provision that they make for sickness, accidents, annuities in old age, loss of employment, tools, &c., payments to the widows at death, and other little privileges which friendly societies will not ensure, is a very good evidence of their potency; and, were it necessary, and you would allow me space, many other things could be adduced to prove their power and effect, and the influence that Trades Unions have had in the formation of the moral character and respectability of working men, as well as their pecuniary position and their independence.—Yours respectfully,

A Society Man.

Cardiff, March, 1866.

THE GUILDFORD WORKING MEN'S INSTITUTE.

To the Editor of the Working Man.

Dear Sir,—With respect to your notice of the "Guildford Working Men's Institute" in No. 11 of your paper, I beg to state that you are right as to the date of its establishment—viz., 1856.

I can scarcely understand what you say about a division between the boys and men. I was a member of it for some years, and never observed the division spoken of. The reading-room was certainly separate from the room where the chess, bagatelle, &c., were conducted, but the boys and men had equal access to both. To the classes, also, all ages were admitted—at least, it was so in any I have joined or wished to join, and *I* am now but seventeen years old. Even some members of the committee were young enough to be classed under the genus "puer," or almost so, in my opinion. The *only* attempt at separation I ever saw was that lads under eighteen years of age were excluded from the bagatelle-board.

I perfectly concur with you as to the efficacy of the librarian, and should consider it a dark day for the institute if they lost him.

Hoping you will not consider me intrusive in thus addressing you, I remain, Sir, your respectful subscriber,

March 15th, 1866. H. E. N. E.

REFRESHMENTS AT THE GUILDHALL EXHIBITION.

To the Editor of the Working Man.

Sir,—At a meeting held in the Guildhall on the 12th instant, for the purpose of electing adjudicators in connection with the City of London Working Men's Exhibition, a working man present made several attempts to bring before the meeting the inconsistency of blending with the refreshment department the sale of intoxicating drinks, thus converting it into a tap-room or beer-shop.

Now, Mr. Editor, the ostensible plea for exhibitions, libraries, and working men's clubs, &c., is to counteract the pernicious influence of the public-house, and to draw the working population away from the temptation of strong drink. I quite concur with the working man's idea that an establishment of this kind, omitting the sale of strong drink, would be more consistent with the objects of an exhibition of industry.

Many present sympathised with the idea offered by this working man, and were sorry it could not be more prominently brought before the meeting, particularly as the space of the exhibition is so very limited.

The refreshment arrangement of the Lambeth exhibition is an example worthy to be followed, as no intoxicating liquors were allowed to be sold.—I am, yours respectfully,

March 19th, 1866. An Exhibitor.

WORKING WOMEN.

To the Editor of the Working Man.

Sir,—Your valuable little journal, the Working Man, has found its way into our house from its commencement, and, as I perceive its pages are exclusively intended for working men, pardon me when I say I wish something of the kind were issued for *working women*.

Providence does not always provide us a partner in marriage, and when it does, often sees fit to remove the same, leaving us with a family to maintain, under which circumstances I think you will see how acceptable a little consideration and advice would be.

Really, sir, it hardly seems fair that such great efforts should be made to advance the social interests of working men, while working women are left to struggle through their difficulties as best they may.

Hoping you will excuse the liberty I take in addressing you, I remain, yours respectfully,

A Working Woman.

TO CORRESPONDENTS.

Thomas Seabright.—The long grooves in the needles are made during the process of manufacture by the same means as the eyes are formed—by pressure.

A. S.—The superior economy of the Lenoir air-engine consists in the working. The engine itself so nearly resembles a steam-engine, that the cost is nearly as much. One of 1-horse power costs £80.

Balls, W.—To stain wood blue, dip it into a hot solution of sulphate of indigo, and, while still hot, place it in a solution of three ounces of cream of tartar in a quart of water.

W. B.—A cement for fastening brass letters upon glass is made of resin 150 parts, bees'-wax, 30 parts, burnt ochre, 30 parts, and calcined plaster, 2 parts. Apply while warm.

Orlop, W. B.—An average speed of twelve miles an hour is a very good one for an ocean-going steamer. River steamers have attained a speed of twenty-four miles an hour.

Allison, J.—Leather goods sent to hot climates are very subject to be destroyed on the voyage and upon arrival by vermin. The best security we know of is to rub the shoes or other articles with castor oil, either pure or mixed with one-half other oil or tallow, after which no vermin will attack them. Paraffine oil is equally effectual for a time, or until it is all evaporated.

Bellman.—Certain alloys of copper and zinc are so hard that they will cut steel, and serve well for tools. It will sometimes take a good workman a couple of days to cut a 1½ in. hole in a bell.

M. E.—The lime should be previously slaked, else it absorbs all the water, and causes the cement to set too quickly.

Thomas Tetin.—We hold to our statement that the smoky chimney is cured only by contracting the portion immediately above the fire-grate; in bad cases, this contraction will require to extend ten or twelve feet upward. The strong downward current is generally caused by the room communicating with another in which a fire is burning, the strong upward current of which is supplied with air drawn down the other chimney, causing it to smoke when there is a small fire in the grate.

A. B. C.—You do not require a book on the subject. The rules are very few, and are given in most English Grammars.

Hodgson.—We believe the engines you mention are at South Kensington, but cannot possibly ascertain without making a visit there; the same with regard to the cooking depôt.

Macbeth, W.—You can sell your grease without paying duty, tax, or licence; or the recipe, if you can induce any one to buy it.

John.—You had better commence with wood carving, as that costs but little to start with. Sculpture is costly, and far more difficult.

R. Lambert wishes to obtain the title of a book that will teach Plan Drawing for Mining.

Abel R.—Not more than 40 per cent. of copper is added to zinc to produce brass: if that proportion be exceeded a white alloy results, which is not marketable. A brass composed of 60 per cent. of copper and 40 per cent. of zinc is susceptible of being drawn or bent when cold, but cannot be forged or worked when heated; whilst, if 1·75 or 2·0 per cent. of iron be substituted for the same quantity of zinc, then a most valuable brass is obtained, capable of being forged at a red heat like iron, while its tenacity is nearly equal to that of iron.

Clive, T.—Silver or plated articles may be cleaned without rouge or other powder, by immersing them for half an hour in a solution made of 1 gallon of water, 1 oz. hyposulphite of soda, 8 oz. of muriate of ammonia, 4 oz. liquid ammonia, and 4 oz. of cyanide of potassium. The plate, when removed from this solution, is washed and rubbed with wash-leather.

T. W.—White of egg mixed with varying proportions of water is generally employed for the purpose; the paper requires hot pressing afterwards. Balsam of capivi is used because it is nearly colourless, and does not injure the brilliancy of the blue pigment, as a dark varnish would.

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This Company is established for the purpose of Leasing or Building a Painters' Trades Hall, Library, and Reading Room, for the use of Trade, Benefit, and other Societies.

PROSPECTUS.

Seeing the great evil of having our meetings at public houses, and the necessity of improving our condition, both morally and socially—conscious of the difficulties and failures that have attended all former efforts in this direction—we have taken a broader basis as the foundation of our work, and a fixed determination that no effort shall be wanting on our part to ensure its success.

To remove the existing evils of public house meetings, the London Central Painters' Society members have formed a Company, on the principle of limited liability, for the purpose of leasing or building a hall in a central part of London, such building to consist of a hall capable of holding 1,000 persons seated, library, and reading room, with large rooms for the use of various societies to hold their meetings in, with committee and refreshment rooms attached, lavatories, &c.

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The promoters of the Company are, on allotment, to receive the money outlaid for the promotion of the Company, and no further remuneration until 10 per cent. has been divided amongst the shareholders; any profit over and above this rate to be divided amongst the shareholders and promoters, in proportion of two-thirds to the shareholders and one-third to the promoters.

For the many benefits it will confer upon them, it behoves the working classes generally to devote their entire energy to its advancement, and take every opportunity of making it known and appreciated; as we advance in years, numbers, and intelligence, great and numerous will be the advantages which those who come after us may acquire through our earlier exertions.

The promoters, in bringing this scheme before the working classes, feel the greatest confidence that, if supported by those it is intended to benefit, it will prove one of the greatest advancements of the age, both morally, socially, and financially, and will ultimately produce a large dividend to the shareholders.

FORM OF APPLICATION FOR SHARES.

To be retained by the Bankers of the Company.

No.

To the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED.

GENTLEMEN,—I have paid to your credit at your Bankers the sum of £ , being a deposit of 2s. 6d. per share on shares in the above Company in respect of such shares, or in respect of any less number you may allot me, and I agree to pay the further sum of 2s. 6d. on allotment thereof, and the instalments according to the terms of the Prospectus.

Name in full,

Residence,

Profession or Trade,

Dated this day of 186

If it is not convenient to make the deposit with the Bankers of the Company, the form may be sent by post to the Office of the Company, accompanied by a Crossed Cheque or Post Office Order for amount of the deposit, which will be paid into the Company's Bankers, and the Receipt returned by post to the Applicant.

BANKERS' RECEIPT.

To be signed by the Bankers and returned to the Applicant.

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£ : :

[12

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On Milk and its Adulteration. By Augustus Voelcker, Ph.D., F.C.S., Professor of Chemistry to the Royal Agricultural Society.
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THE WORKSHOPS OF THE WORLD.

FISH-HOOK MAKING AT REDDITCH.

Fish-Hook Making at Redditch.

WE cannot tell how hooks were made in the early ages of the world, but the specimens furnished by savage tribes at the present time are doubtless very similarly constructed, and of like materials. Wood and bone are substances which come readily to hand long before the use, or, indeed, the existence, of metals becomes apparent; and being easily worked, are soon brought to produce implements of considerable perfection and neatness. Many specimens of hooks, for

instance, made by the North American Coast tribes, are fashioned in bone, have two, three, or four barbs, and display singular care and finish in the execution.

The author of "Secrets of Angling"—a very rare and curious book, containing many poems of great merit—thus poetically fables concerning the origin of fishing and the first fish-hooks:—

"Then did Deucalion first the Art invent
Of Angling, and his people taught the same;
And to the Woods and Groves with them he went,
Fit tooles to find for this most needfull game.
There from the Trees the longest Rindes they rent,
Wherwith strong lines they roughly twist and frame,
And of each crook of hardest bush and brake
They made them hooks the hungry fish to take."

Whether Seth, Deucalion, or Belus, "the first Inventor of virtuous Recreation," originated fish-hooks and angling, we leave the poets to determine, and come down at once to later times and our own country.

Britain has produced a great number of writers upon this subject; but the earliest work printed in our tongue was from the press of Wynken de Worde, in 1496, written by Dame Juliana Barnes, and entitled "The Treatise of Fysshinge with an Angle." One of the most rare books is the one just quoted, "The Secrets of Angling; teaching the Choicest Tooles, Baytes, and Seasons," by J. D. (John Dennys), Esq., printed in 1652. This author says, "I use to make mine own hooks, so shall I have them of the best Spanish and Millan needles, of what sise, bent, or sharpness." In the next year (1653) was published the first edition of that most fondly-cherished of all piscatorial books—viz., "The Compleat Angler; or, the Contemplative Man's Recreation," by Izaak Walton. The gentle Izaak's pastorals, whether in prose or turned into verse whilst sitting on a "primrose-bank," quietly plying his hook and line, contain some of the sweetest, purest of thoughts, and will ever afford delight to English readers. Poetry, pleasant and tender thoughts, and the use of fish-hooks, seem at first sight to form an odd combination; but they are not unfrequently found together; and it is rather singular to note the coolness with which anglers, usually feeling enough in other matters, regard the torturing uses to which their hooks are applied. Listen to "The Gentleman Fisher" (printed in 1727), giving directions for baiting with a live minnow. "Put it (the hook) in at his mouth, and out at his gill; then, having drawn it two or three inches beyond or through his gill, put it again into his mouth, and the point and beard out at his tail."

Most of us see little of the use of fish-hooks, except by anglers, but the greatest quantities are consumed in the deep-sea fisheries, in the following manner: To a very long line are fastened, at intervals, short lines of about three feet in length, to each of which is attached a hook, and all are then let down into the sea, sometimes to the depth of ninety fathoms. Whiting, haddock, cod, hake, &c., are, or were, all caught in this manner.

Fish-hook makers have to exercise very great care to meet the requirements of fishermen, as the sorts are almost numberless, and the "fishers" are very particular in having the exact kind of hook to which they have become accustomed.

Redditch, the centre of needle-making, also supplies the world with most of the fish-hooks that are manufactured. The trade in these latter, however, compares very unfavourably with the former as regards amount, value, and regularity of demand. It is very fluctuating, there being a demand for certain sorts only in the different seasons, just while the fish are ready to be caught; and thus the workmen are ever busily employed, or have little to do—a state of things never very conducive to the welfare of working men, either in a pecuniary or moral sense.

Messrs. Henry Lewis and Son, of Redditch, have kindly afforded us facilities for sketching in their factory, and we will now endeavour to describe

HOW FISH-HOOKS ARE MADE.

The wire for making fish-hooks is procured in coils from Sheffield or Birmingham, of different qualities, varying with the kind of goods required. All first-class hooks are made from the very best cast-steel wire; other qualities are made of steel, but inferior; whilst the common sorts of large hooks are made of iron.

Cutting the wire into lengths suitable for the hook about to be made is the first operation, and is performed in two ways. The small and medium sizes are cut from the bundle or coil in quantities, between the blades of a pair of large upright shears, in the same manner as needle wires (see page 130); but large sea-hooks, made from thick wire, are cut singly, each length being placed separately upon a chisel fixed in a block or bench, and struck with a hammer. What are called "dubbed" hooks, are "rubbed" after being cut—that is, placed in a couple of iron rings, then made red-hot, and rubbed backwards and forwards with an iron bar until the friction has made every wire straight. Hooks, in general, are not rubbed, but are at once taken to be "bearded," or barbed, which is thus performed: The bearder, sitting at a work-bench in a good light (see engraving), takes up three or four wires with his left hand, between the finger and thumb, and places the ends upon a piece of iron, somewhat like a very small anvil, fixed in the bench before him. In his right hand he holds the long handle of a knife of peculiar shape, the blade of which, having the edge turned from him, is placed flat upon the wires, the knife-point at the same time being passed under a bent piece of iron firmly fixed, which enables him to obtain sufficient leverage to cut the soft wires and raise the barb, or "beard," this being done by *pushing* the handle forward, whilst the point remains fixed, as described. It becomes a laborious operation in the case of very large sizes, requiring, not merely a forward motion of the arm, but a strong push with the body against the handle.

They are next taken by the filer, who makes the points. (See illustration.) Each barbed wire is taken up separately, fixed in small pliers held by the left hand, then placed upon the end of a slip of box-wood, and filed to the degree of sharpness required. This is a matter of great nicety and delicacy. Common hooks are pointed with one file, but the finer sorts require two or three, flat and half-round. Large sea-hooks have the ends flattened, and the burr cut off on each side with a sharp chisel into a roughly-shaped point, previous to being filed. The points of "dubbed" hooks are not filed, but ground upon a revolving stone, and this process is called "dubbing."

When the points are made, the "benders" proceed to operate upon them. The woman seen in our illustration holds in her left hand a piece of wood, at the upper end of which is inserted a curve, or "bend" of steel, projecting slightly. Taking a wire in her right hand, she catches the beard upon one end of the steel curve, and pulls the wire round into the proper "hook" shape. For the larger sizes, the "bends" are fixed, not held in the hand.

Nothing now is necessary to perfect the formation but "shanking," which is done in various ways. Hooks are flattened at the shank end by a workman, who holds the curved part in his left hand, rests the end upon the edge of a steel anvil, and strikes it one sharp blow with a hammer. Some are tapered at the end with a file, whilst others are simply curled round, or "bowed," to provide a fastening for the line.

With steel hooks, hardening is the next process; but iron ones require converting, or "picing," before they will harden. The pic-hole is a recess with a large, open chimney, and in this recess is placed an iron pot, filled with alternate layers of hooks and bone-dust. At a little distance from the pot, bricks are built up all round, and the space filled with coal, which, when lighted, creates an intense heat, and to its action the hooks are exposed for about ten or twelve hours, allowed afterwards to cool, and are then fit for hardening. To effect this, they are exposed to a great heat upon pans in a fire-hole, and, whilst red-hot, poured into a cauldron of oil. Small hooks are afterwards tempered in a kind of frying-pan, partly filled with drift-sand, and placed over a fire. The larger ones are tempered in a closed oven, at a low heat.

When these operations are completed, they are taken to the scouring-mill, of which we have given an illustration. It is occupied by a number of revolving barrels, driven by steam-power, and containing water and soft-soap, into which the hooks are put, and allowed to remain for two or three days. At the end of that time, the friction having worn them all bright, they are taken out, and dried in another revolving barrel, containing saw-dust. Blueing, japanning, or tinning follows—of which the two latter are performed in the ordinary way, and the blueing is done by exposing them to a certain degree of heat in drift-sand over a fire, in the same way as small hooks are tempered. Counting, papering, labelling, and packing, complete the series, and the goods are then ready for the market.

Readers of the foregoing description can hardly fail to notice the extreme simplicity of most, or all, of the processes; and it seems strange that in such an age as ours there should be little improvement in the mode of production, as compared with the fireside practice of amateurs 200 years ago. In the "Secrets of Angling," before referred to, the author describes the making of hooks (as practised by himself) in the following terms:—"Soften your needles in an hot fire in a chafer. The instruments—First, an hold-fast. Secondly, an hammer to flat the place for the beard. Thirdly, a file to make the beard, and sharpen the point. Fourthly, a bender, viz., a pin bended, put in the end of a stick, an handfull long. When they are made, lap them in the end of a wier, and heat them againe, and temper them in oyle or butter."

The Weavers of Spitalfields.

A FEW HOURS WITH A RELIEVING OFFICER.

Comparatively few people are aware of the present condition of the Spitalfields weavers, a class which has for centuries added to the comfort of the people, and increased the national wealth. The people who are most familiar with the facts are the relieving officers, the clergymen, and a few others, whose duty enforces visits to the homes of "poverty, hunger, and dirt;" and one of these visits may be recorded for the benefit of those whose concern it is to know how trades sink and fall.

An accidental visit in an official capacity to Bethnal Green convinced me that there was much to be learned from an examination of the homes of this class—much that it would profit men who read the Working Man to know. I accordingly sought out one of the relieving officers, and he, knowing my profession and my purpose, willingly assented to my accompanying him that very hour upon his journey, undertaken in the discharge of his duty, to visit the homes of the out-door poor—namely, the poor who receive relief from the parish while living in their own homes.

We walked from the workhouse towards Mile End; but before we reached Bethnal Green Church my companion stopped at the entrance to a turning the road and footpath in which were undistinguishable the one from the other, being all black mud. This is no very great distance from the spot to which Legend's finger points as the place where the knight first saw the Blind Beggar's daughter, whose alms-gathered wealth—gathered on this spot—smoothed the path from seeming lowliness to rank and power. Beggars may have amassed wealth here in by-gone times, but workers do not now. Up this passage we turned, and I heard a peculiar noise proceeding from all the wretched-looking houses about there, which told me I was in the centre of a busy hive of workers—how busy and how ill-paid I knew only by repute. The noise was the sound of an industry as ancient as grave-making, and as lowly now—weaving. The busy "click, click," which seemed to come from all the one-storied dwellings by which we were surrounded, was nothing more than that made as

"The shuttle merrily
Goes flashing through the loom;"

for we were in one of those districts of the "Hospitality Fields" of a few centuries back, where certain Huguenots, exiled from their country for religion's sake, settled down, and carried on that then much-prized industry, the art and mystery of silk-weaving, which the descendants of those self-same Huguenots still carry on, and to which is given the name of Spitalfields weaving. It was at the door of one of these lowly houses that the "R. O.," for so my companion called himself, gave a knock, and the door opening, we had only to step across the threshold to find ourselves in a weaver's home. It was a rudely-furnished place, the furniture being a table, a couple of chairs, a bedstead, two children, and a loom. There was nothing on the boards as an apology for a carpet; but the apartment—dining-room, living-room,

kitchen, washhouse, bedroom, workshop, and nursery, all in one—was cleaner than one might have expected, where so much had to be done; and two women there were the reverse of slatternly-looking. One of these was washing; the other was at work at the loom. In answer to my questions, she said she was weaving silk for gentlemen's sun-shades—clearly a West End work, for few "gentlemen" visit the district when the sun is shining, except, perhaps, by accident, and then they take care not to carry sun-shades, lest they should be followed about by the precocious East End boys, as was Lord Macaulay, when he in this district bought a handful of songs of a street-seller, in his eager study of the people's muse, and was escorted through the "fields" by a crowd, anxious to hear him "sing 'em." It is said that a person can only do one thing at a time; but my worker at the loom kept her fingers, feet, and tongue going all at once. The loom had been in the family for generations; it was her late father's, and had been his father's; and when her father died, she had "to take to" weaving for the support of the family. "It's dreadfully badly paid"—and so it must be, for, with finding workshop, lighting, and all other employer's expenses, the earnings of work for the full six days do not exceed seven shillings a week—"nothing," said the woman, "to what weaving was" in those by-gone, "good old times." The "case" the relieving-officer had come to visit was a poor old woman, the aunt to the father of the family, and who had found shelter in this poor home and this poor family, where she preferred to stay to going in the "house." She was lying in a room up a ladder-sort of staircase, and the entrance to that apartment was through a trap-door. The case is only mentioned just to show that the kindest human feelings can exist where there is the cruellest poverty. The old woman must be a tie upon the hands of the household, and as the most she got altogether was of the value of half-a-crown a week, they had to give her home and attention without being stimulated by direct or indirect reward.

On going out of this house we traversed many streets of the same sort of buildings, only that their outward appearance was somewhat better than the first one visited. We had occasion to enter into some inhabited by others besides weavers, and found, on inquiry, that many skilled men had turned their backs upon their trade to become porters and labourers in the docks. The houses in this district are peculiar in this respect—they have been built for the weavers. This is shown by the upper floor windows—they are nearly all one-storied houses—being so formed as to admit all the light the frontage affords. A sick weaver, who had had a "doctor's order"—that is, had been visited by the parish doctor—was "looked up" by Mr. Relieving Officer, and this gave me an opportunity of seeing these more modern houses. I have been in many strange places in my time, but I never was in such a doll's house in my life as this. The place seemed built for a diminutive race, for an average man would have to walk edgeways down the passage; and the back "parlour" was no more, if so much, as seven feet square. The rent paid for this four-"roomed" house was four shillings a week, and the man had lived there twenty years. "They're generally old standers, these weavers," said my companion. I asked the man how much he earned a week, and his reply was ten shillings, when he went on without "play." My mind at the word "play" reverted to skittles; but "play," I was informed, meant the forced idleness of the weaver when one piece of work is finished and a new web is being laid, or "entered," as it is called, on his loom. He has to wait until the "enterer" comes, and he is obliged to be content with a play extending from three days to as many weeks. "The trade was not always like this, in my time," said the little weaver. "Oh, dear, no!" ejaculated his smaller wife. "Why, I used to have half as much more than I can earn now, when I was an apprentice, for pocket-money," chimed in the man. There were signs about the room that the man was a botanist—a lover of green fields, one, perchance, who found

> "Tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything;"

and his whole appearance was such as to show that he was not a drunkard; and yet, after years and years of toil, when any extra need came—an aching head, or bruised finger, or few days' "play"—he was forced upon the parish for the assistance which the savings of his trade, if he had been properly remunerated, should have afforded him in his old age.

The next "case" was one which made a most painful impression upon my mind. We passed up the ladder-staircase of one of these houses, through a trap-door, and we were in the "place" of a velvet weaver. His idle loom was, of course, on the best-lighted side of the garret; the workman was lying stretched upon his poor bed, groaning with the pain of a terrible disease—a disease engendered by unwholesome air and insufficient food. Poor worker! whose best years had been spent in a sober, hard fight with poverty, hunger, and long hours of ill-paid labour, and who had been forced thus to succumb. That loom would no more be touched by him, and the unfinished work, commenced in hope, was a standing commentary upon the fallibility of all human expectations. When we reached the floor, and stood in the presence of the dying weaver in his workshop-home, we found a visitor before us—a brother workman, who had come in his hours of "play" to offer sympathy, but who was powerless to offer help. He was sitting on the only chair in the room—for every movable article of furniture had been "parted with" before application had been made to the parish. Here was a proof that the people have no pauper spirit within them, and that they struggle to maintain their independence. The proof that the poor, wretched fellow, who was striving to repress his groans, was a thoughtful, sober, humane man, was to be seen in the little studies of botany adorning the otherwise bare walls, and the care taken, even amid this pinching poverty, of two birds, whose song had cheered the weaver at his work. That he was honest and trustworthy, was proved in his being entrusted, in this wretched home, with most valuable property. I walked to the loom, and raising the covering of the newly-woven velvet, I saw that it was of a very superior quality—of such a quality as can only be purchased by those of the highest, or assuming to be of the highest society. I remarked that it was excellent velvet, and the pride of the poor wife, who was standing by, for the time overcame her grief, and she ejaculated, "Yes, sir; he's a beautiful workman," an opinion confirmed by the workman visitor in short and emphatic language. When I was told the price at which the work was done, I candidly confess I felt somewhat ashamed of free-trade, of society, of capitalists, and of workmen altogether; for this "beautiful workman," with his own machinery, in his own workshop, without any expenses of over-looking, could only earn about 12s. or 14s. a week, after labouring with all his skill for as many hours a day as would make a day and a half of some trades, the price of his labour being only 1s. 11d. per yard for weaving this exquisite velvet, whereas, a few years ago, he was paid 6s. a yard. The pain of witnessing an upright, honourable, hard-working man, thus forced to exist in a position which is a day-to-day struggle with poverty, was enough to make me, with all my knowledge of human suffering in all forms, groan aloud at this palpable wrong "somewhere"—or, as the hero of "Hard Times" would call it, "dreadfu' muddle."

All the scenes I witnessed I need not recount. The relieving officer had to pass into fever-stricken alleys, into actual fever-dens, where small-pox and typhus were raging, and everywhere he was a welcome visitor. Although the parish almoner, it was easy to see that a kind, not to say Mark Tapley spirit, of being jolly under circumstances that would drive many men to be cruel and heathen-like, had made him have a heart in his vocation; and he gave the parish mite, not with a show of treating the people as though they were thieving paupers, but as though he desired, as far as he could, to relieve their most pressing necessities in the manner best suited to their condition. That this was no "best behaviour" I soon found out, for I often heard a quiet, "God bless you!" from sick and dying lips when he was out of hearing. The last place I saw was that of a silk-weaver, who had 5d. a yard for weaving silk for umbrellas. He told me he was from an old Huguenot family, and he went and produced pieces of old-fashioned silks, such as were worn generations ago, and which were treasured up as specimens of his forefathers' great skill. The one poor room in which this man and his wife lived was clean and tidy, but would have looked comfortless to many a man of the "light porter" class. He told me that if he could only earn 9s. a week regularly they would be comparatively rich; but the "play" would not allow it. The "parish" was only sought for by this couple when the man was ill, and he expressed himself as very thankful for the doctor's order which had been given him.

Is there nothing in these "cases" for the profitable consideration of working men? Can they not read, in the present wretched condition of the Bethnal Green weaver, a caution against invariably bringing up the child to the father's occupation; and see in this the necessity, if a man's years admit of it, of turning attention to some other trade directly the skill of his fingers in the calling in which he has been trained does not yield him a sufficient remuneration? Had these weavers looked about them years ago, they would not thus be left to struggle face to face with poverty, in their later years, when their care, their soberness, and their industry for a lifetime should be yielding its fruit of an independent old age instead of the certainty of a pauper's end.

*Building Societies.**

The Mutual Benefit Building Societies we are now referring to, charge no interest to their borrowers; they cannot consequently pay any interest to members who choose to withdraw from the society before they get an advance. Not only so, but a very wise, although a very unpopular, provision in these societies is, that a member either cannot withdraw his subscriptions at all during the progress of the society, or cannot without submitting to a serious loss. A more liberal practice, however, has been springing up lately of allowing withdrawal without deduction or fee at all, excepting, perhaps, a shilling or two per share per annum for working expenses. But as we know how badly this plan is likely to work, and is really working, we must say a little more about withdrawal. In order to secure the prosperous working of these societies, it is very important that for the first few years at least the shares shall be all kept up; because, of course, the income depends at first entirely upon the members' subscriptions. Every advance that is made, however, strengthens the society, inasmuch as there is secured by every mortgage an annual payment equal in amount to several members' subscriptions; but it will take about seven years for the receipts by repayments to amount to a sum equal to the annual income by subscriptions; so that there should either be sufficient restriction to withdrawal to keep the original members in, or to induce them to provide substitutes, or else there should be inducements sufficiently strong held out to cause the withdrawn shares to be taken up again. Either way, for the society to be in a prosperous condition, the shares should be all subscribed for, at any rate, for the first seven years. After that period withdrawal may be allowed, because an annual income being secured from advances, the appropriations can still be made sufficiently frequent to satisfy the waiting members; and by paying out unadvanced shares, and abstaining from re-issuing them, the society will be materially shortened, because the retiring member receives only the amount he may have paid into the society, being certainly under £50, and by so doing foregoes his right to an advance of from £200 to £300. Such withdrawals, therefore, quite take the place of appropriations, while less than a quarter of the sum is required for them. Hence, members of these Building Societies should not complain, if, after the society has been kept full seven or more years, the withdrawals prevent the appropriations coming oftener. They should remember that the fewer members there are to participate in the appropriations—in consequence of withdrawals—the better chance the remaining members have of getting the right to an advance, which quite makes up for the appropriations coming even less often.

The following extracts from the rules of two societies will show how varied is the practice respecting withdrawal. The first is from a copy of rules certified in 1862, and states that "no notice of withdrawal shall be valid if given earlier than five years after the last time of the member taking part in an appropriation." The next is taken from a set of rules certified in 1863, and provides that "any member desiring to withdraw

* Continued from page 199.

from the society shall, after giving three months' notice in writing to the secretary, receive back the whole amount of money which he shall have paid into the society, with the exception of all fines that may have been paid, and 1s. per annum per share for working expenses." In both societies all the appropriations are balloted for, and arrears have to be paid by new members; so that the only reason we can find for the excessive liberality of the latter is in the too prevalent practice of societies, as well as individuals, to sacrifice stability for popularity. As it is of great importance to the working man to be able to withdraw his money, should occasion require, it is worthy of consideration whether it be not possible to arrange for advances *free of interest*, combined with *easy withdrawal*. Some societies are now trying the experiment. They provide against the extra number of vacancies which are certain to occur, by allowing persons to take the withdrawn shares without paying up the arrears; and it does seem probable that such an arrangement would keep the society tolerably full, and especially so where the plan of alternate sale and ballot is introduced, because a considerable profit must be made by the society, in which all the members will participate after a certain number of years (it should be about five or seven); so that, for a member to withdraw within the first five or seven years, although he may be offered the full amount he may have paid in, would be to lose his share of profits, and this would be a strong inducement to make members hold on as long as possible, and probably enable them to find customers for their shares at a premium. Some persons are in the habit of drawing out of one society as soon as a new one is introduced to them, and which suits their fancy; and they use the specious argument that they can have use of the money saved by means of the former, and still stand the same chance of getting the appropriation in the latter. "A rolling-stone gathers no moss;" and such persons aim at the two birds in the bush, while losing the one in their hands. A working man should, we think, reflect that for every £200 or £300 he may be able to subscribe for in a Building Society, he will be that amount better off at the termination of the society; and that if he is constantly getting into new societies, while he has the *chance* of getting an appropriation, he is unquestionably losing the *certainty* of realising that amount at all. The duration of these societies depends upon the amount of the subscriptions, and the sum fixed upon for each appropriation. The larger the amount of the subscriptions, and the smaller the amount of the appropriations, the shorter will be the duration of the society; and, of course, as the subscriptions are lowered, and the appropriations increased, so is the society lengthened.

Men who have Risen from the Ranks.

VI.—SAMUEL WILDERSPIN.

The newspapers, in a short paragraph, have just announced the death of a man, who first came into public notice half a century ago—who rendered peculiar services to society, and made for himself a name which entitles him to distinctive remembrance. He has been forgotten, and may be said to be entirely unknown to this generation; so that the announcement of the death of Samuel Wilderspin has attracted the interest and attention only of those familiar with the earlier stage of social progress in England. The third edition of his own account of his system of Teaching was published by Simpkin and Marshall so far back as 1825, now forty years since. No Biographical Dictionary to which we have been able to refer—and we have consulted many for the purpose—makes mention of his name. He has never had a place among Men of the Time. We believe an early volume of the *Phrenological Journal* gave an article upon him, and twenty years ago Mrs. Mary Leeman Gillies gave a notice of him in the *People's Journal*, then conducted by Mr. John Saunders. In Educational Magazines and Parliamentary Blue Books, in Proceedings of the Board of Education, in old Review articles on the Bell and Lancasterian systems, his name turns up; and very possibly the public may one day see some complete biography of him. As far back as 1836, there was published an account of the origin of Infant Schools. We believe some details were also given of Mr. Wilderspin's connection with them; the publication of which led to a controversy at the time.

Samuel Wilderspin belonged to the very humblest classes. He first came into notice as a pupil of Mr. Buchanan, a young weaver, whom Mr. Owen had trained at New Lanark to be a teacher of infant schools, and whom Lord Brougham and the Marquis of Lansdowne borrowed from Mr. Owen, that they might introduce the Infant system into London. Certainly Mr. Wilderspin arose from the ranks by labour, for successful school-teaching is very hard labour—but young Wilderspin also arose from the ranks by smiles and vivacity. His geniality and enthusiasm were his fortune. His genius lay in his capacity for studying the ways of children, the patience with which he taught them, and the devotion with which he gave all his time and powers to mastering the modes of instructing them. His natural atmosphere was the school-room; all the excellences of his nature came out there. He had not the large views which the animated founder of infant schools—Mr. Owen—had; he owned not the genius, or resource, or originality, which Pestalozzi possessed—parts of whose system he availed himself of—but in a lesser degree and in his own way, Samuel Wilderspin was a great teacher.

Samuel Wilderspin began his distinctive work as a teacher in 1819. At that time the possibility of establishing infants' schools was looked upon as very doubtful. Only small adult schools were generally believed in, and these could not be conducted without a copious application of birch. Even in university and college schools, flogging was believed to be indispensable, and a schoolmaster with a strong arm was thought to be as necessary as one with a strong head. Everywhere the schoolmaster was a terror, and learning a pain. If the discipline of the rod and the sternness of the schoolmaster were necessary in schools where the children of gentlemen attended, or with youths whose reason could be appealed to to preserve order, how much more necessary must strict discipline and severity in the teacher be with the children of the poor—ignorant, wild, young, unreasonable, and unmanageable? And when gathered together in great numbers—not in twenties and thirties, but in hundreds—it was supposed that a little crowd of schoolmasters and bundles of birch would be necessary to preserve order and impart instruction. Wilderspin's plan was to teach hundreds of children at once, in one class, with one or two teachers, and without the rod. The children were in favour of it, but the public shook their heads at the plan as mere good-natured Utopianism. It was at Spitalfields that Mr. Wilderspin obtained his first triumph. There it was, to use his own language, that "two hundred and twenty-eight infants, under six years of age, were assembled together at one time; and there it was first proved that one man and one woman, without assistance, could teach, delight, make happy, classify, and manage, so many little creatures without a tear and without fear." This was certainly the pleasantest thing that ever came out of Spitalfields. No one would have expected, in that dreary region of low wages and privation, that so sunny a system could be developed. Wilderspin has told of the many difficulties which he had to encounter in learning his merciful art. He often found himself in a crowd of rebellious children, whom no speech could pacify, no threat reduce to order, no expedient win to silence. One day, when the juvenile rebellion was raging around him, it occurred to him to take off his cap and hoist it on a stick. The novelty of the thing struck the insurgent urchins with astonishment; every eye was turned to the unexpected effigy of the schoolmaster's cap on a stick. Curiosity was awakened, silence was established, and every one listened for an explanation. This opened the mind of the ingenious teacher to modes of imparting lessons to awaken interest instead of exciting fears, and he became distinguished for his happy management, and as the practical contriver of a system in which instruction was blended with love and play. Others before him had proclaimed the possibility of doing this on a yet nobler scale, and had even realised it; but he had the practical talent to carry out and apply as much as was possible of the plan under the circumstances existing in the school system of his day.

His merits as a teacher soon became recognised. His experience in Vincent Square, Westminster, and Spitalfields, attracted the attention of eminent friends of the working class, and a public meeting was held in the Freemasons' Hall, presided over by the Marquis of Lansdowne; and a School Society was established. The public, however, did not support it, and it fell through for want of funds in 1826. For many years Mr. Wilderspin went about the provinces as a kind of Infant School Missionary; he visited Scotland and Ireland, and to every town to which he was sent schools sprang up under his feet.

It was not known or not believed by the public that it was easier to teach children than men; it was contrary to all expectation. Mr. Wilderspin had mastered this truth, and, what was more, could show it in practice, and he thus made an Infant School system possible. The plan involved simplicity and cheapness, and cheapness for once was associated with kindness.

He held public examinations of little children, to the wonder and astonishment of their parents. Mrs. Leeman Gillies tells of the impression which he left upon the minds of those who witnessed his extraordinary exertions. She says, "He taught us to love. He taught us to think. He taught us to learn. But for *him* we had been ignorant and criminal—through him we are informed and Christian."

In 1838 the Board of National Education at last took up his plans. The Commissioners sent him to organise their national schools, and teachers everywhere were taught on his system; and he had the satisfaction of seeing the success of his years of toil and enthusiasm recognised. But fame found him poor. Pestalozzi lived and died in extreme poverty. It seems the lot of those who care much for others to be incapable of taking care of themselves; and it seldom occurs to society to take care of them. Philanthropy is a profession which never pays, and Wilderspin, like many others, found himself, when old and worn out, with no prospect for his old age. He had five daughters, all unprovided for. Happily, in the days of the *People's Journal*, attention was called in its pages to the destitute condition of the great instructor, and steps were taken to provide for his remaining years. Sir Robert Peel, with his usual kindness (shown in many a similar case), sent £50 to assist him whilst some plan was devised for his advantage. Mrs. Gaskell (the afterwards famous authoress), Mrs. Gillies, and many other ladies, exerted themselves on his behalf; and one day, in 1846, a handsome and valuable present was made to him at the Rev. Mr. Gaskell's house. Distinguished persons were present. Mr. Monckton Milnes (now Lord Houghton), Mr. Charles Dickens, Mr. Thornton, and Leigh Hunt made appropriate speeches on the occasion. We believe that afterwards the Government gave Wilderspin a pension, and his remaining years were spent in well-earned dignity and competence. He died, a few days ago, in the neighbourhood of Liverpool, where he usually resided, leaving behind him one of the pleasantest memories in the annals of modern Education.

*Employers and Employed.**

We have already explained the principles of the law affecting master and servant with regard to the following points:—1, The Engagement entered into between them; 2, Their mutual Duties and Liabilities; 3, Wages and their payment. We have lastly to consider its bearings on the subject of

DISMISSAL AND CHARACTER.

A contract of service, as we have sufficiently set forth in our first article, can properly be terminated only by mutual consent, or due notice given on either side. But there are circumstances which are held to justify an abrupt dismissal of the servant by his employer, and even the refusal to pay him wages for any portion of the uncompleted term of his service. Thus, if a weekly, monthly, or yearly servant give a master such legal ground of dismissal, he can not only be sent immediately away from the service, but cannot recover wages for even that portion of the term which he may have served without complaint. The reason is a fair and just one. The master suffers by the act which has caused and justified the dismissal in the eye of the law; and he is, moreover, put to the inconvenience either

* Continued from page 195.

of dispensing with the service for a time, or of finding a substitute for the servant so dismissed.

But the servant is protected by the law against any unjust or oppressive exercise of this principle; for if he has been improperly dismissed, he can recover his wages not only for the time he may have served, but also for the uncompleted term of the contract. If his service be yearly, and he has been improperly discharged at the end of six months, he can recover wages for the entire year; and so for any shorter term. He can do this by action for debt as to the term already expired, and for damages under a special count as to the uncompleted period. In some cases he may even obtain more, as damages, than the wages to which he would have been entitled at the expiry of the completed term; for if he has suffered in reputation by the wrongful dismissal, or has been unduly hindered from obtaining another engagement, a jury will take that into consideration, and order him compensation accordingly. On the other hand, if he has obtained, or might have obtained, equally eligible employment after his dismissal, a small compensation will be held to indemnify him for his loss.

We will now explain what are held by the law to be rightful grounds of dismissal without the ordinary notice. The first of these is gross moral misconduct in any shape, as affecting the master or his household. Embezzlement of the master's money or his goods, to the value of the smallest coin, will be held to justify such dismissal; for a servant who is found to be dishonest with regard to small things, cannot be trusted in anything. A servant, also, who abuses his master, or disturbs the peace of his family, may likewise be sent away without warning.

Secondly, wilful disobedience on matters within scope of the service, is lawful ground of dismissal. The master is allowed to judge as to the precise way in which any act of service should properly be performed, or the time of its execution. And under this head, a refusal to work during the customary hours, or to conform to the usual hour for dinner, has been held to be an act of wilful disobedience within the meaning of the law. But if it can be shown that the matters in which the disobedience may have arisen are really of trifling moment, causing no inconvenience to the master, and implying no reluctance to do his duty on the part of the servant, the law will not consider this just ground of abrupt dismissal. For all such shortcomings the master has sufficient remedy in the usual notice to his servant.

A third rightful ground of dismissal is habitual negligence in the performance of the work, or doing it in a careless, slovenly, and inadequate manner. To this may be added a servant's absenting himself repeatedly from his duties, and refusal to submit to domestic regulations. But temporary absence without leave, producing no serious inconvenience, and not repeated, has been held to be insufficient ground of dismissal; as also absence for the purpose of procuring another situation, such absence being warranted by custom.

In dismissing a servant on any of these grounds, a master is not compelled to assign the precise reason for dismissal. It is enough if he can show that sufficient cause actually existed at the time of the discharge. And it is to be understood that in all these cases, what is sufficient to warrant the dismissal, is justification also for the refusal to pay wages for the uncompleted term of the contract.

If a servant should bring an action for wrongful dismissal, it is sufficient that he should maintain that he was "ready and willing" to continue the service. It is not necessary to his success in the action that he should actually have offered to do so.

We now come to the subject of giving a character, in which misconceptions frequently arise. There is no law to compel a master to give any character of a servant, unless it has been an express part of the contract that such character should be given. And the servant who may even find himself unable to procure another engagement, by reason of the master's refusal, has no remedy by action for damages against him. A master may really have had good ground for a dismissal, but may suffer injury by revealing the consequences of the servant's wrongful act leading to the dismissal, which he might have to do if a character were given. Or, in consideration for the servant, he may be indisposed to speak what he really believes respecting him, without certain knowledge. But whether there be or be not any such reason, the law on the point is clear that a character may be withheld.

A master is morally bound to speak the truth respecting his servant if he give him a character at all; but even if he should give him a false and injurious character, he is liable to no legal penalty, if the misrepresentation has been made in good faith, and without malice against the servant. It is essential that the servant should be able to prove that the character given is both false and malicious, to entitle him to maintain an action for damages. Malice might be inferred by a jury from attending circumstances, showing the existence of ill-feeling towards the servant on the master's part.

A master who gives a false character of his servant, in order to induce another person to take him into his service, is liable to that person in an action for damages for any injury he may have suffered in consequence. Personating a master or mistress with a view to giving a counterfeit character, is an offence punishable by a fine of £20, or imprisonment, in default, for one to three months with hard labour.

Letters from Lancashire, by a Lancashire Lad.

VI.—OPERATIVE BOOK CLUBS AND BOTANICAL SOCIETIES.

Those who are fond of taking long walks may sometimes obtain more entertainment than they reckoned upon, by meeting with some humble naturalist, engaged in sedulously pursuing his studies of flowers, mosses, or insects. I do not think it is possible to name any part of the country which has been so celebrated for its production of workman naturalists as this county of ours. For a very long time, scientific men have recognised their indebtedness to hand-loom weavers, and to others occupying equally humble stations in life. A friend of mine has recently lent me an old scrap-book, containing cuttings from old *Manchester Guardians* and other papers, and all bearing upon the life and work of these men. I may make an interesting letter or two from what is thus placed before me.

Many of the naturalists of whom I purpose speaking in this and the succeeding letter, were brought up under the old form of Lancashire life. The newspaper cuttings which my friend has preserved contain descriptions of rambles in search of these men, and of their book clubs and discussion classes. The ground gone over has been trodden by myself many times. Lying between Manchester and Rochdale, it contains as many memorials of the recent past as can be found in any ground of equal extent. Within it John Collier produced the works known as the "Tim Bobbin" series. Within it also occurred most of the events which are recorded with such literary skill in Bamford's "Life of a Radical." Here Cobbett—

> "Gentle Nature's stern prose bard,
> Her mightiest peasant-born,"

as Ebenezer Elliott calls him; here Oastler, the "Factory King;" John Fielden, whose name will be always associated honourably with the first and most terrible phase of the factory system; Feargus O'Connor, with his Chartism and his land scheme; W. J. Fox, the "Weaver Boy" of the League—all found their keenest and truest friends. Political feeling was very strong in these parts, and the cottagers here read and took to heart the shot-like words which Cobbett hurled amongst them so plentifully. But they cared for something besides politics. Indeed, during the time of greatest agitation there were some of them who were so addicted to "buzzart catchin'," and "yarb (herb) huntin'," and to the study of mathematics, that the hot rush of political feeling passed almost without touching them. Then, and at a later time, they formed little book clubs, holding weekly or monthly meetings, to exchange books and to discuss such topics as were of general or special interest. I find in my scrap-book a description of some of these clubs. One was held in an old-fashioned house, occupied by a regular "farrantly couple," and their grown-up sons and daughters. Here, some dozen or more years ago, about a score of working men, most of them weavers, would meet once a month, pay their penny subscription, and select the books for the next four weeks' reading. These men might be, perhaps, too old-fashioned to fall in with the new notions about mechanics' institutes. However that may be, they preferred to get their books in the way described. Passing from this house, the writer went on to the house of a "yarb" seller, who was noted for the cures wrought by his simples, and who resided in an ivy-bound cottage standing in the country lane. The herbalist was seen to be over threescore years old, and was attenuated enough, and had just the thin grey hair—the "toppin'," his neighbours called it—which would enable him to seem like, if not to enact the character of, the apothecary in "Romeo and Juliet." The ceiling was mostly hidden by the number of parcels of dry or drying herbs, which hung upon the strings running horizontally from side to side. The trim garden at the end of the house was well filled with growing herbs. Here the visitor saw "hyssop, thyme, ringwort, horehound, camomile, wormwood, tansy, broom, great water-dock (for scurvy), lovage (for cattle), sweetgale, St. John's wort, mother-of-thyme (for nervous disorders), and yellow maiden-hair (for coughs and colds, once accounted a specific for almost all disorders)." The old man knew something, too, about books, and chatted pleasantly respecting them; and he knew much of an unpleasant kind of the hard times through which he had lived. He was not too humble to be moved from his home to the New Bailey, and thence to Coldbath Fields Prison, under warrant from the late Lord Sidmouth, and the poor fellow was thought to be so dangerous that he was kept in Colchester Gaol until the expiration of the Habeas Corpus Suspension Act. This old man being acquainted with such of his neighbours as were intelligent, told his visitor the way to George Whittaker's, where another book club was held.

George's was a farm-house, standing in an isolated position at the top of a huge meadow, and was approached by the visitor treading along a road so old that perhaps it was made before Cæsar came, and saw, and conquered this island. The club was established in 1830, with about ten members, and had no more than twelve when the writer of the articles from which I am gleaning visited it a dozen years ago. The members met on the first Saturday in every month to pay subscriptions, exchange books, and to converse together. At Christmas they held their annual meeting, had a substantial supper—perhaps a huge potato-pie with "whoam-brewed" to wash it down—and then proceeded to business. The sort of men of which this society was composed may be understood from the following statement. There were two book-keepers at factories, two brick-setters, four farmers, one shopkeeper, one foundryman, and three weavers. Their library contained just the books which one would expect to find. Cobbett was largely represented in it, and Adam Smith, Tom Paine, Robert Burns, William Howitt (in his "History of Priestcraft") were names seen on other title-pages, and indicated the political tendencies of the members. Proceeding with his inquiries, the writer found other book clubs, all supported entirely by working men, and all being quietly conducted. Going along, too, he learned something of a peculiar custom which was observed in the rural "fowts" and the isolated dwellings of the labouring populations of Chadderton, Royton, and the scattered hamlets about. The custom is called "brewis-eating." A stranger walking about here on Sunday afternoons, might chance to step into one or other of the cottages, and would, no doubt, be surprised to find the chief room filled with company. If he sat down he would probably have a pot of ale placed before him, and the conversation, or rather the discussion, which his entrance had interrupted, would be resumed. He would find that some of these men—wearing fustian jackets, and having gaily-coloured silk neckerchiefs round their throats, with very slightly-starched "dowlas" linen collars falling open in the front, sometimes *à la* Byron—are able disputants. It is a pleasure to listen to them. All of them are shrewd; one or two, slightly pretentious in their language, are replied to by others who exhibit considerable satiric power. After the discussion has gone on for some time, it is postponed because of the "brewis." This is a hot beef-stew, having toasted oat-cake soaked in it, and is a favourite dish with these country people—is, indeed, so much liked, that those of them who migrate to the big towns take their taste for it with them, and to

this day no small amount of business is done on Sunday mornings by the smaller butchers in supplying this stew for breakfast. The feast over, the discussion goes on again until, with the approach of twilight, it is either ended or adjourned to a future time. In these places the subjects with which the names of Cobbett, Fielden, Feargus O'Connor, Fox, Cobden, and Bright are most frequently associated, were discussed with such earnestness and fulness of information as showed the intellectual and moral standing of the men. Resuming his inquiries, the writer found a reading-room and library at the extensive foundries of Messrs. Platt, of Oldham. Even then this workshop library had above a thousand volumes in it, and has since had many more added. I may at another time say more of that and of other factory institutions. At present I have said enough to show that long ago in the outer districts of Lancashire there was considerable intellectual activity amongst the operatives.

Passing from book clubs, and their political and general associations, I should like to say just a word or two about the botanical societies which have, from time to time, been established by the operatives of this and the neighbouring counties. It will have been noticed in what has been read above that the meetings of the book clubs were usually held on a Sunday. They were held on that day because the members were then all at liberty. The botanical societies were also held on Sundays. About sixteen years ago, one Joshua Barge, keeper of the "Ostrich," Rooden Lane, Prestwich, was charged with allowing men to assemble in his house during the time of Divine service. He was convicted and fined; and some inquiries being made, it became known that the men who had met at the "Ostrich" were men in humble circumstances, and members of a botanical society which had then held Sunday meetings for more than seventy years. Only once before had an information been laid against them by the police, and on that occasion conviction and fine followed. These societies had existed for a very long time, and it is probable that Ray, who has been called the founder of the English school of botany, obtained indirect aid from their members. In 1850, there appeared in the *Manchester Guardian* a short paper on the history of these societies. The paper was written twelve years before its appearance, by Thomas Heywood, of Cheetham Hill, himself one of the working men botanists, and ranking high in his class. His writing exhibits the smallness of his literary culture, but reveals the enthusiasm with which he regarded his pet study, and the fulness of his knowledge respecting it. He holds that the entomologist, the geologist, and the anatomist, must all yield precedence to the botanist. There is something objectionable either to taste, to health, or to feeling, in each of the other studies, but in *his* all is pleasant. He has only to step across the threshold of his home to be at once surrounded by a multiplicity of beauties, the study of which leads him to "admire and adore that Being who could frame everything with such infinite wisdom." He speculates upon the most remote ages in which there were botanical collectors, and shows that the monks in the Middle Ages were fond of his science; that they collected, and grew near their monasteries, not only the plants which were native to the soil, but others which they brought from abroad. He tells us that to them we owe the naturalisation of the nightshade (*Atropa belladona*), the snowdrop (*Galanthus nivalis*), and others. He shows that there was one Sunday botanical society held at the "Old Check Cap" public-house, at Eccles, in 1775, and that before the outburst of the French Revolution they were common all over the county. The meetings were very orderly. Sometimes the peace officers would drop in, and express themselves satisfied and pleased, and sometimes the clergyman himself, after his labours in the church were over, would come and partake of the information which each member could contribute towards the better understanding of the beauties and uses of the inanimate creatures of God. Amongst these men were some to whom our greatest and most renowned naturalists have acknowledged their indebtedness; and the modesty with which they opened their stores of knowledge—most of it obtained from close, scientific observation, in hours stolen from labour or rest—was one of their most noteworthy characteristics. In my next letter, I will sketch the lives of a few of these men.

Parkesine.

Those who listen or read with a view to their own improvement, or with a desire to store their minds with useful knowledge, will, in all probability, consult both cyclopædias and dictionaries of arts and sciences in vain for the word which heads this paper, and which represents a material destined to be applied to many useful as well as ornamental purposes in life. This, of itself, might be taken as an argument in favour of the newness of the substance; and as it is a characteristic of the human mind to be almost continually searching after novelty, it may find some gratification in being informed that Parkesine is eminently distinguished by this quality. The word itself is formed from the name of Mr. Parkes, the inventor of the material, and also the fullest interpreter, so far as we are aware, of the variety of properties of which it is possessed.

The circumstances which led Mr. Parkes to the invention of Parkesine, arose out of the reflection and observations of upwards of twenty years. During all that time he cherished the idea that a new material, which should, to a large extent, partake of the properties of ivory, horn, hardwood, tortoise-shell, india-rubber, gutta-percha, and similar substances, might be invented. Such an idea would, to any one destitute of chemical knowledge, appear of impossible realisation; yet it has been realised, by what now seems to be the simplest means, and no one as yet can foresee all the useful purposes to which the product which has sprung from it may be capable of being applied.

The first appearance of the material in its rough state was at the great Exhibition of 1862, when it attracted a considerable degree of attention, and received a prize medal. Since then its manufacture has been immeasurably improved, so much so that it now seems to be in a fair way to supersede the use of both india-rubber and gutta-percha for many of the useful purposes to which these have hitherto been applied.

Parkesine is composed of pyroxyline and oil, either alone or in combination with other substances. We must observe that the sense in which the word pyroxyline is here to be understood, is as expressive of a less explosive preparation than the more highly converted compound known as *gun-cotton*—a material which has hitherto been used for blasting, military, and photographic purposes only. After much labour and long investigation, Mr. Parkes observed that the solid residue left in the evaporation of the solvent of photographic collodion, produced a hard, horny, and waterproof substance. This suggested the idea of employing in all his experiments pyroxyline, xylodine, or some similar matter as a base for further operations. He found, however, that the solutions of collodion, in 1855, when he took out his first patent, were practically unavailable for carrying out his manufacture to any great extent, or producing it in such masses and forms as would render it convertible into objects of general utility. This forced upon him a new series of experiments, with the view of discovering a more economical mode of production, and by dint of patient labour and perseverance—mostly the price of every great invention—he found that, by improving the character of the pyroxyline and employing different solvents, he made great advances towards the results he desired to obtain. The economical method he pursued in the manufacture of the pyroxyline or other similar compounds, and the use he made of improved and less costly solvents, enabled him greatly to cheapen his material. The consequence was, that after many years of labour and thousands of experimental trials, he succeeded in producing it in any quantity, and at a cost of less than *one shilling per pound* and upwards, according to quality. In proof of the value of this achievement, we may state that before the invention of Mr. Parkes, the cost of a similar article was £6 10s. per pound, which, we need hardly say, placed it entirely out of the reach of the multitude.

Some of the means by which this immense reduction was obtained in the price of an article capable of such general application to the useful and ornamental arts of civilised life, have been explained by its inventor. One of these was the employment of waste cotton, in the shape of rags or other forms, which he was enabled to procure at a very low price, and, also, the use of improved solvents, which the invention of special machinery enabled him to recover. These were two of the means, but he was, likewise, able to dissolve the pyroxyline in a wet state, which enabled him to economise both the time and the space, as well as to avoid the risk in drying which hitherto had to be incurred, but which recently improved machinery put it in his power to accomplish otherwise. These were the principal means which facilitated the production of the article at such a price as will stamp it with great commercial value, by enabling it to be converted into many useful applications. In all extensive manufactures this must always be one of the very first consideration. If a material cannot be widely as well as cheaply employed—and it cannot be widely employed if it cannot be cheaply produced—the extent of its sale must be both too circumscribed and slow to be sufficiently remunerative. It is, therefore, in this particular that we perceive the value of such an invention as Parkesine. The substances of which it is composed can be obtained in any quantity, and as its manufacturer has a perfect control in the manipulation of these substances, he can on all occasions ensure not only a regularity of supply, but any quantity of the quality required. This is certainly not the case with some of the products which it seems likely to supersede, such as ivory, india-rubber, and gutta-percha. The first of these, being an animal production, is at all times subject to an irregularity of supply; and in reference to india-rubber and gutta-percha, although the products of plants, the same observation applies. Of the first there is only a limited quantity yielded every year; and the trees which yield the gutta-percha are entirely destroyed when their produce is abstracted from them. These circumstances, therefore, must more or less control the supplies, whilst, in the case of Parkesine, no such disadvantages or uncertainties exist.

The facility with which this new material can be converted into different degrees of flexibility and hardness is not the least valuable of its properties; nay, it may be ranked among its most valuable, on account of its being the means of enabling it to be applied to a much greater variety of purposes than it would otherwise be. When its flexibility is desired to be increased, the preparations of pyroxyline are rendered more elastic by certain combinations with oils, solidified, or partly solidified, by the action of chloride of sulphur. This is dissolved in bisulphide of carbon, or mineral naphtha, the proportion suitable for the purpose being from *ten* to *fifteen per cent.* of chloride of sulphur to the cotton-seed, castor, or other oils. This produces a solid or semi-solid consistence, according as more or less of the chloride is used; so that the substantive condition of preparations of pyroxyline may be considerably modified, in order to suit special applications, by the use of resins, gums, tar, paraffine, stearine, glycerine, and other materials combined with them. The result of using a large proportion of the chloride is to solidify the oil, but about *fifteen per cent.* is sufficient to produce a tough, elastic substance. In proportion as the oils predominate, so is the flexibility of the material regulated. By applying camphor to the dissolved pyroxyline in varying proportions of from *two* to *twenty per cent.*, sheets of the material are produced with greater facility, and of more uniform texture. Similar objects are obtained by the use of gelatine dissolved in glacial acetic acid.

One of the most beautiful features connected with this invention is seen in the capacity which the dissolved pyroxyline possesses for the reception of colours. "The solvents used in the manufacture of Parkesine," observes its inventor, "are also good solvents of the aniline colours. This gives the great advantage of producing the most beautiful colours in a transparent substance, as well as in opaque or solid masses; and when these coloured articles are carved, the most exquisite effects are produced, imitating amber, malachite, and many other natural substances. Moreover, as the material can be moulded by pressure, the most beautiful works of art can be copied at a very small cost. For many large and cheap applications as much as *sixty per cent.* of pigments, sawdust, or cork-dust can be introduced with advantage, and thus is produced an exquisite and solid substance, very strong, and capable of being moulded and turned in a lathe, or rolled into sheets, at a cost exceedingly low."

We have already alluded to the economical price at which this material can be produced, and

which leads us to expect it to be employed in an infinite variety of ways in almost every condition of civilised life. Nay, it is not too much to expect to see even a copy of the first volume of the Working Man, bound in beautifully embossed covers of it, representing, with artistic precision, the various handicrafts of the artisans of England in a series of well-conceived designs executed in *basso relievo*. There is nothing extravagant in this expectation, for the material is capable of almost limitless application, whilst its adaptability for such a purpose may be considered as having already been proved. Some of the purposes for which it will be available are for spinners' rolls and bosses, for pressing rolls in dyeing and printing works, embossing rolls, knife-handles, combs, brush-backs, shoe-soles, whips, walking-sticks, floor-cloth, umbrella and parasol handles, buttons, brooches, buckles, pierced and inlaid work, tubes, bookbinding, chemical taps and pipes, photographic baths, battery cells, philosophical instruments, waterproof fabrics, sheets, and other articles for surgical purposes and works of art in general.

Another application of Parkesine promises to be of the utmost importance, and that is, to the insulation of telegraph wires. Into this portion of our subject, however, we will not at present enter, but may take it up at some future time, when the adaptability of the material for such a purpose has been thoroughly proved by the test of frequent and severe experiment.

LABOUR IN FACTORIES.

In the half-yearly reports, just published, of the Inspectors of Factories, we find Mr. Robert Baker speaking very strongly in favour of an enlarged application of the Factory Act Extension Act. Mr. Baker observes:—"It may be said, and will be urged, that additional hands on emergencies could never be obtained. My experience leads me to disbelieve in the word 'never' with respect to commercial operations. Even now, in most warehouses, additional hands are temporarily engaged on emergencies, and discharged on the emergency ceasing; and another kier or two for the bleacher, another roller for the printer, and a few more hands when needed, would obviate every difficulty. The main objection to the adoption of the Factories Act Extension Act, without the elective clause, is that in some localities from six to six is contrary to the conventional hours of work, and that before eight a.m. many household matters have to be transacted by the women. To this I reply that young mothers have no business to leave their families for the factory or the warehouse; but if it is really needful, they must be content with what they can do in reasonable hours to supplement the labour of their husbands and children. There can be no justice in debarring thousands of women of home knowledge at the close of day, for the few to whom early rising may be a grievance. Moreover, there is a silent and daily wrong accruing to any master who works his people after the sense of fatigue commences. No female, young person, or child ever worked with the same continuous energy through the night as through the day, even when the whole day has been passed in quietude. In the days when factories ran all night, I used professionally to call at the homes of the workers, to know whether they were in bed. But as closed eyes during day are the result of slumber only (not sleep), which is comparatively unrefreshing, so, on a visit to the works at midnight, during the 'dinner hour,' I have found many of the same operatives fast asleep till roused by the rumbling of the engine or the noise of the machinery in motion. I remember, too, on one occasion, having to put a bleacher under the Factory Act who worked exceedingly long hours, with all his workpeople, among whom were many little children. He was very angry, and at first put both me and the law at defiance. I recommended him, however, to take counsel's opinion and to be governed by it, which he did, and, finding he was wrong, became obedient, and, on a subsequent visit, said, 'Sir, you have been my best friend. I used to work from five in the morning till eleven at night, and I thought the Factory Act would ruin me; but now that you have compelled me to work from six to six with the same room, power, hands, and appliances, I get more work and better work out of the hands than I ever did, and I have not lost a customer.'"

What Shoeblacks can Earn.—The total earnings of the boys of the Islington and North London Shoeblack Brigade, in 1865, reached the sum of £951 15s. 10d., showing, at one penny a pair, a total of 228,430 pairs of boots cleaned, being an increase of £354 15s. 4d. over the earnings in 1864. The average weekly earnings have thus been £18 6s., and the daily earnings, £3 1s. The average number of boys daily employed throughout the year was 30½, each boy's average earnings being £31 3s. 11d. yearly, 11s. 11¾d. weekly, or within a fraction of 2s. a day.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

The only other case of partial failure that I shall refer to by name is that of the *Southampton Working Men's Halls*; and I mention their name, 1st, because the earnest and benevolent promoters have publicly expressed their own views on the matter, with which mine, for the most part, coincides; and, 2ndly, because they were commenced so brilliantly, and attracted such a large amount of attention, that, unless their want of greater success can be satisfactorily explained, the faith and zeal of many friends of the movement may be much impaired.

The first of these Halls was opened in September, 1862, just before our own society got under way. So great was its popularity, that the gentlemen who established it were led to open two others shortly afterwards. This they now consider to have been their *first* error, for there was not enough working power to conduct and control all three. None of us at first understood how much continuous work is required to make a club succeed; and although some of the gentlemen, and several of the working men who originated the halls, laboured most zealously, they were not adequately supported. They early saw, but not soon enough, that their *second* error was the universal mistake with regard to the age of admission. Lads and youths rushed in, monopolised the bagatelle-boards and other games, keeping the halls too often in a state of excitement and noise utterly subversive of a grown man's notion of comfort and relaxation. *Thirdly* must be ranked the absence of solid mental improvement. The halls were little more than mere recreation places; and hence no earnest growth of interest in the undertaking, nor gratitude for benefits conferred by it, continually added new recruits to the ranks of its devoted supporters. *Fourthly* must be noted the cardinal error of having merely Halls (places to go to) instead of Clubs (societies to belong to). On no point does experience, as well as broad views of the needs and tendencies of human nature, speak more plainly than as to the necessity of binding the members into a true and brotherly fellowship, if these clubs are to live and prosper. And, in the *last* place, the very serious but much less usual mistake was committed at the outset of the Southampton enterprise, of having a double committee system. A gentlemen's committee, appointed by the donors and honorary members, had supreme authority, and each hall had its own working men's committee acting in subordination. Now, it is quite right, of course, that when gentlemen give money to start a club, they should have some security for the due application of their funds; but if the clubs are to be supported by working men, *they must belong to and be managed by working men.* This is clearly one of the main and fundamental principles of the movement—one on which I have not yet had occasion to dwell, but on which it is impossible to lay too much emphasis. As a shrewd artisan observed at one of our conferences, "Working men have masters all day long, and they don't want 'em at night." I should think not. Change of attitude is indispensable, as necessary for growth as for comfort. Unless the club is really their own, of course, they will not go near it. But this does not imply that they object to fair and reasonable conditions of membership, or to being bound by two or three fundamental rules, or to persons appointed by those who find the money having authority to enforce such rules. All this is very different from having an irresponsible committee over their heads, with power to veto any of their proceedings. Hence we have always urged the appointment of trustees, in whom should not only be vested the property of the club purchased by donations, but who should have power to maintain the fundamental rules, to prevent the use of the club-house for improper purposes, and even to close it if the objects duly defined were not being carried out. Working men in most places, but at all events in Great Britain, are remarkable for their respect for law, and are especially used to the authority of trustees in many of their societies. Ample security is gained by this plan, without needless and ruinous interference, *or power of interference*, on the part of those who may be in a higher position, and who have contributed of their larger means to establish the club. We have given full information on the whole of this subject in one of the publications of the Working Men's Club and Institute Union.

But the friends at Southampton had to grope their way in this matter, and to buy their experience rather dearly. They offer it for the benefit of others, and say with us, Do not have a House of Lords and a House of Commons. Either unpleasant collisions will take place, or the independent working men will throw up their share in the business, and go their way. Generally the latter will be the result of those inevitable conflicts of opinion or action. The only possible exception may be found in the case of a club established and conducted in rooms forming part of church or chapel buildings, and where a very judicious committee of persons connected with the property *may* exercise the required control without collision or offence; but, at the best, it is a hazardous and, as I think, objectionable experiment. One great advantage of clubs is the opportunity and call they give for persons of different ranks cordially to work together; and while I strongly contend that it is a great benefit to the working men that they should have the advice and co-operation of two or three gentlemen (using the word in a very wide sense) in conducting their club, as all experience proves, I am quite sure that it is far better, as a general rule, they should sit in the same committee with the working men, and not have a separate committee of their own. They will always command sufficient influence if they are the right sort of men; and if they are in a very small minority, and are at the same time impressed with a conviction of the importance of leaving the working men sufficiently to themselves, there would be no danger of their having undue weight in the committee.

In five clubs this plan of a double committee has been tried, and it has been fatal to four of them. The fifth case is of the exceptional character above referred to, the club being held in rooms under the school-rooms adjoining a large district church, and it has not been very long in operation. It may possibly work well there, *i.e.*, not be positively injurious. But under the most advantageous circumstances I should still believe it would be better that two or three of the gentlemen should sit on the working men's committee *rather* than in a separate committee of their own. If, however, the property belongs entirely to the working men, and they alone are answerable for the rent; or if the gentlemen to whom the said property belongs, and who guarantee the rent, are not willing to have any share in the management beyond seeing that fundamental rules are observed, then they had better occupy, as before said, the position of trustees. This is, practically, the plan of administration in the Duck Lane Club, where the committee has always been composed exclusively of the labouring classes, but where Miss Cooper has been the ultimate depositary of power and court of appeal.

Two out of the three original Workmen's Halls at Southampton have always preserved a small but vigorous element of life; and after reaching the lowest stage of exhaustion, the surviving members, with true British pluck, willingly accepted the responsibility offered them of taking the management entirely into their own hands, and last year entered on a new and independent career, though, of course, in a very humble way, compared with their former commencement. They have still had the valuable advice and influence of the Messrs. Westlakes, and are working along in a thoroughly sound and, so far, satisfactory manner. A coal club, formed by the Winchester Terrace Club (late Orchard Street), has been eminently successful, and a considerable help to the club in several ways. It numbers 480 members. The parent club itself has about 72 regular members, with about 20 occasional ditto. The other club, at Northam, suffered much, not only formerly, from dissensions between its own committee and the gentlemen's committee, but even since being placed on an independent basis, from the conduct of its late secretary. Its last return, however, shows about 77 members, and it is about two-thirds self-supporting, with a rent of £20. The other club is quite so, but has only two rooms at present, at a rental of £10.

There is another small hall at Portswood, in the same town, more recently established, from which I have not yet received any returns, but I believe it is leading an humble and useful existence.

* Continued from page 187.

MONEY PRIZES,
TO BE COMPETED FOR BY
WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

APRIL 7, 1866.

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Parliamentary Manners.

The best artists sometimes make mistakes, and throw into their compositions an unhappy dash of colour, which destroys the entire harmony; and makes critics say they have not learned the "secret of tone." Perhaps the objectionable streak is a mere whim—perhaps an experiment—possibly a deliberate act of judgment—but an error all the same; and almost every one who looks upon the picture thinks so. The Right Hon. Robert Lowe, who is a great artist in speeches, committed this fault in his late oration against Reform. In the foreground of his canvas, he put in the working classes, in colours rather too dark, tinged by rays equally too lurid. This was an error in art. It spoilt the otherwise brilliant effects which the great word-painter aimed at producing. Such a disparagement of the working class was felt to be a fault of taste, not to say an offence. True, the working class are not perfect—we should like to know what class is. No doubt the great working class includes numbers whose habits admit of improvement; but, as a body, they possess very many undeniable claims to political recognition. Mr. Lowe's method of argument would require a personal comparison of the habits of classes to answer it. Now, class personalities, we take it, would be as offensive, improper, and unparliamentary as any other personalities; and we think that Mr. Speaker, on his return to his chair, would do well to rule so.

On the last night of Parliament before the Easter recess, this question of personal imputation received memorable notice from the Chancellor of the Exchequer. Lord Robert Montagu spoke of Mr. Villiers, the President of the Poor Law Board, as "*pretending* to be the friend of the working man." Mr. Gladstone, when he rose, called Lord Robert to order; and, on his lordship adhering to the phrase, Mr. Gladstone said that, "in his opinion, the working men, if admitted within those walls, would set the noble lord an example of courtesy—an example of good breeding—an example of high breeding which he might do well to follow." This was a vindication of the manners of working men which we hope they will always deserve. It is a rule of the House of Commons that no personal imputation of insincerity, unveracity, meanness, or dishonourable motive, shall be made. Each member is expected to give others the same credit for good faith, high feeling, and good intention as he claims for himself. And if any member, in the heat of debate or otherwise, transgresses this rule, he is instantly called to order; and, on being made aware of the sense in which his words are regarded, he is expected to recall them, or disavow the offensive sense imputed to them. If he refuses or evades doing so, he incurs loss of character, and the extreme displeasure of the Chair. This rule preserves the high character of Parliament as an assembly of gentlemen of good manners; and, in this respect, it is as easy for a society of working men to be gentlemen as though they wore fine cloth and had large rent-rolls. It merely requires self-respect and careful consideration for the character and feelings of others. Many persons cannot see how they can argue at all unless they can be disagreeable, and make personal imputations on others. The law of debate is this: a member of Parliament may find fault with the wisdom of another member; he may convict him of error, of partial views, of advocating injurious measures, of saying (unconsciously) unfounded things. He may do this without personal offence, because no man is all-knowing, all-seeing, or infallible, and no man pretends to be so. But every man ought to be honest, and truthful, and well-meaning. Every man assumes to be so; and his self-respect forbids him to sit still and hear himself charged with want of faith, or truth, or right feeling. And no gentleman ever makes these imputations, since debate can be conducted better without them. The truth can be ascertained quite well by discussing the nature, bearings, and facts of any measure. This was the ground of Mr. Gladstone's remonstrance to Lord Robert Montagu. As leader of the House of Commons, Mr. Gladstone is responsible for the honour and character of Parliament.

It was after the words we have just noticed that the noblest vindication of the working class made in Parliament occurred. Alluding to the sudden and protracted cry for statistics for the first time set up in the House of Commons, Mr. Gladstone, whose manner and tone on the Friday night in question betrayed the return of his wonted fire, exclaimed—"Honourable members seem as if they were engaged in ascertaining the numbers of an invading army; but the persons to whom their remarks apply are our fellow-subjects, our fellow-Christians, our own flesh and blood, who have been lauded to the skies for their good conduct—men who have borne destitution and starvation in a manner which might be a lesson to all of us."

This, it must be owned, is a generous and ample answer to Mr. Lowe's and Mr. Horsman's imputations. The working class are, we are glad to think, grown robust-minded, and do not care to resent ungenerous or disparaging things said of them. We are glad to see that they mostly pass them by in dignified silence. But since there might be those in Parliament who would believe assertions made by eminent speakers to the detriment of the people, it is well that such remarks there should be answered in the same place; and when they are answered by one so high in authority and knowledge as Mr. Gladstone, there is an end of them, and the just character of the working class is established on a better foundation than ever. The working man owes Mr. Gladstone gratitude for this generous vindication of his order.

Franchise Correspondence.

We mentioned, in a recent number, that "opinions were wanted in Parliament," and for several weeks past have had the satisfaction of publishing a series of letters, in reply and in reference to Mr. Clay's Bill, which throw a curious and interesting light upon the reception likely to be accorded to it. The letters are as genuine as they are spontaneous, and written with a degree of relevance, readiness, and even felicity of expression, which do great credit to the writers. We have no doubt they will be read by many members of Parliament with considerable attention.

Just as the Statistical Society may discuss the number or relations of electors to the population of any given country, without entering into the political functions of electors; just as the British Association for the Advancement of Science may discuss the principle and methods of representation, quite apart from its political bearings, so we propose in these pages to restrict ourselves to the elementary, distinctive, and uncontroversial aspect of the franchise question. We take the industrial, not the partisan or political side of it. On what side working men may use their votes, is no question of ours. On this subject we have nothing whatever to say. We neither advise, nor suggest, nor indicate, nor approve, nor condemn. But whether working men shall be admitted to the franchise or not—whether they shall be elevated in the scale of citizenship—that is a question on which we may have an opinion—at least, we may properly record opinions upon the subject, and explain any steps taken by friends of the working class in Parliament towards this object; and when a method of enfranchisement is proposed, as in the case of Mr. Clay's Bill, which makes intelligence a political necessity in England, that strikes us as a very important thing. It affects working-class interests. Intelligence, all the world knows now, is power; and to make intelligence a political necessity in England is to confer personal power, whether it confers political power or not. A proposition so new as never to have been made before—a proposition such as Mr. Clay's, which, for the first time in the history of the world, proposed to enfranchise the intellect of the common people, and to regard understanding as a civil and political qualification—deserves support alike for its wholesomeness, its intrepidity, and its generosity.

It would be greatly to the credit of the people if they should show to Parliament that they were interested in the principle of such a measure. It is a matter of congratulation that so many of our readers have already commenced to give their opinions. Mr. Glazier, who must have had thoughtful experience of public questions, states very truly that there must be advocacy and exposition for a long time continued before any extensive response can be expected, even to an excellent proposal. It takes a long time to make a thing known, longer to get it understood, and repeated expositions to awaken interest in it. But this is one of those questions upon which interest, once awakened, will not soon subside. The Government appear to have left a door open for Mr. Clay's Bill, by choosing a £7 instead of a £6 franchise. Those they exclude they possibly fear, or their opponents do; but no one fears the intelligent. There is great pressure,

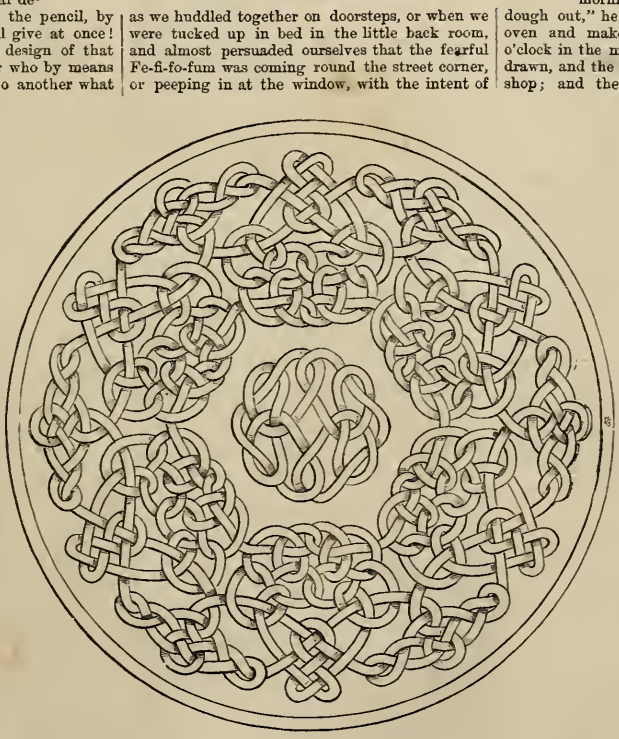
apparently, being put upon the Government to settle the Franchise question, and bring forward a complete measure. Mr. Clay's and Mr. Gregory's Bill would settle it. There would be no further agitation for a Reform Bill. The agitators could never more make way so long as they were ignorant, and as soon as they became intelligent they would, under Mr. Clay's Bill, be absorbed in the enfranchised, and their complaints would be at an end. A more wise, prudent, peaceable, far-seeing, conclusive, and honourable measure of enfranchisement, has never been devised than the Bill of the honourable members for Hull and Galway.

Art Designs

FOR USE IN TRADES AND MANUFACTURES.

CIRCULAR DESIGNS.

The other day, in an ably reasoned and eloquent address to working men, on the advantage of a knowledge of ornamental art, the speaker truthfully observed, "We are all aware of the advantages derived from having a knowledge of drawing, even in its simplest form. How impossible it is to convey a clear impression of an object to the mind of another by a mere verbal description, which a few strokes of the pencil, by a moderately instructed hand, will give at once! The workman who can sketch a design of that which he desires to undertake, or who by means of lines and curves can explain to another what he suggests, at once feels the great advantage such knowledge is to him, and should we follow through this the higher branches of the art, what a delight it is to carry away nature's beauties and wonders, and pass again over the well remembered scenes, with other companions, when transferred to canvas! An artist," he continued, "may be labouring truly in his vocation when designing even such common things as a teapot or a water jug—articles in daily use—and thus may raise the taste for use in the million, and do more for the general benefit of his countrymen than by an elaborate work worth thousands of pounds." A knowledge of drawing is to design what a knowledge of spelling is to literary composition. To be a good designer, one must be able to draw well. The accompanying designs, drawn on a greatly enlarged scale, will afford a good field for practice, and, perhaps, in some instances, prove the means of eliciting some new features from the pencil of the student. It will be perceived that in both instances, the perfect design is formed by a repetition of parts, fitting into one harmonious whole; although, in the second illustration, the centre portion of the design has been so contrived as to remove the idea of repetition.



Grind His Bones to Make my Bread.

In my young days I remember to have experienced unpleasant sensations arising from a couplet, supposed to have been uttered by a very terrible giant, who, having smelt the blood of an Englishman, shouted—

> "Whether he be alive, or whether he be dead,
> I'll grind his bones to make my bread."

I cannot say, so far as I was concerned, that it was a nursery legend, because I was not brought up in a regular nursery, but in a higgeldy-piggeldy fashion, with those who were older and bigger than myself; but I have heard old folks tell the story to us little ones, and we used to talk it over as we huddled together on doorsteps, or when we were tucked up in bed in the little back room, and almost persuaded ourselves that the fearful Fe-fi-fo-fum was coming round the street corner, or peeping in at the window, with the intent of packing us up in sacks and trotting off with us to his mill and bakery.

Well, I have just been reading the newspaper, and it seems to me that Fe-fi-fo-fum, the giant, is a symbol of easy-going, well-to-do, hot rolls and new bread living folks, and that the "Englishman" who was to be so summarily ground to powder for the morning meal, is neither more nor less than the poor journeyman baker, whose life is ground out of him by hard work; who, at an age when other working men are in the prime of their health and strength, is a decrepid man, and whom consumption and innumerable other ills, like the poet's Melancholy, "mark for their own."

I declare seriously that since I read that report of the inquest on George Spriggs, aged fifty-four years, who died the other day in a bakehouse in Cowcross Street, I have felt rather uncomfortable at the sight of a quartern loaf. I know that our daily bread often contains queer substances—some people say bone-dust—such as alum and potatoes—indeed, I have seen potato-peel, too; and I knew a person who returned a large piece to the baker, with his compliments, and a request that the potatoes might be peeled in future; but now I fancy that some portion of a human being's life has been by some strange process transferred to the loaf, and that which is truly the staff of life to us has been in a certain degree the weapon which caused his death. I know such ideas savour strongly of nonsense; but the imagination is excited when the feelings are roused, and I confess to labouring under no slight amount of indignation.

Here, in brief, is the story of the daily working life and the sad death of George Spriggs, journeyman baker, one of many thousands similarly situated, who in every district of London are wearing out their lives in a systematic slavery, which for real hardship can scarcely be surpassed. At five o'clock every afternoon Spriggs left his home to go to the bakehouse. Arrived there, he set the "sponge," then attended to "little odd jobs;" then made the dough; then heated the oven and attended to it until three o'clock in the morning, when, having "thrown the dough out," he helped his master to set it in the oven and make the bread. By eight or nine o'clock in the morning the bread was baked and drawn, and the rolls made and carried up to the shop; and then Spriggs, having been hard at work for about sixteen hours, had breakfast. I hope he had an appetite for it; but I do not think I could eat a bit if I had been shut up for half the time in a hot, close bakehouse, in the stifling atmosphere caused by hot bread. Sixteen hours is a tolerably long spell of work, even for a man who has a vigorous appetite for labour. Certainly he had been at liberty to lie down for a short time while the oven was getting hot, and we must deduct that interval of refreshing sleep on a sack in the corner of the bakehouse, with the black-beetles running over him, from the length of time he had been at work. Still, even after that important deduction he had well earned his breakfast, and then, one may suppose, set off home to enjoy a good sleep, even though it were in the day time, when sleep, I have always found, does not seem wholesome and invigorating.

But Spriggs did not go home then. He had just a little more to do first, and that was to go out to the customers with the bread he had made during the night. I have not the slightest idea of the weight of a baker's basket full of bread; but I know it is something considerable — a great deal more than most persons would care to carry about on their shoulders on a hot day, and, most likely, having been up all night, and having swollen, tender feet, help to make it appear a trifle heavier than it really is. A large barrow, too, filled with bread, is not a slight weight to wheel about; yet, with basket or with barrow, George Spriggs had to make his rounds, be the weather hot or cold, wet or dry. He had to run up and down steps, to be civil to customers, to take money, and make entries in the books of those who ran weekly accounts. For three or four hours he was thus engaged, and then his work was done, and he went home, reaching there by two o'clock in the afternoon. Only twenty-one hours of work out of the twenty-four,

and the same to-morrow, and the day after! He did not attempt to undress when he got home, but lay down in his clothes for the three hours at his disposal. There's a life for a working man! One morning, Spriggs, after he had called his master, complained of feeling ill, sank down among the dough, and said, "Oh, my poor head!" He was laid tenderly enough on some sacks, and his mistress made him some tea; but his eyes glared strangely, his head fell listlessly, and a cold sweat stood in damp beads on his face. A doctor was sent for, but did not come; then the poor journeyman baker was lifted up, and carried to the hospital, a few yards away, and there the bearers found that the pulse was stilled, and that death had brought rest at last. He died from apoplexy—so the doctor said—and to that effect the jury returned a verdict.

"My customers will have rolls and new bread, and bakers must work all night," said the master baker at the inquest. He tried once to do without night work, and found he must also do without business. No hot rolls or new bread, and no customers; that was the result. So the man who makes the soft, warm delicacies must be killed in the work, as Strasbourg geese are slowly tortured, that patties made of their fat livers may be toothsome.

"Why does not the Legislature interfere and forbid night work in bakehouses?" asked the master. The Legislature has interfered to some extent, and might, perhaps, do more than it has done; but the root of the evil lies where Acts of Parliament cannot well reach it. There might be night work and new bread, too, and yet nobody be over-worked, if the masters chose, or if the men were as resolute as the men in other trades are. But, I suppose, the heart is well nigh like out of them, and no wonder. But this I say—and, as a skilled workman myself, I say it confidently—that it is a violation of right reasoning and justice to combine the work of a skilled workman and a mere porter in the same man. A man who can make bread is skilled in an art which he had to learn and to pay for learning, either in money or time. It is unjust and cruel to force the bread-maker to be the bread-carrier also. Two men would do the work better, and neither be over-worked. When the batch is drawn from the oven, the work of the baker is done, and he ought to go home, having, indeed, finished a good night's work. Then a carrier should be employed to supply the shop with the batches, and to serve the customers out of doors. An active man, fresh to his work, would be worth two poor, weakly fellows, emaciated by over-work, and with feet swollen by the heat of the bakehouse and want of rest.

I say it in all seriousness, that the story of the death of George Spriggs is one of the saddest tragedies I have lately read. If such things are really unavoidable under the present system, things must be bad indeed; but, as I have said, I believe a change is quite possible, and that the giant who loves hot rolls may still enjoy them without any George Spriggs being ground to make the bread.

*How the Rate of Wages may be Raised.**

BY ARTHUR HOUSTON, M.A.,

Whately Professor of Political Economy in the University of Dublin.

From what was said in the article on wages immediately preceding, which will be found on page 183, the reader will have understood that efforts to raise the value of labour should, as far as possible, be made by acting either on the demand—that is, the capital of the country—or on the supply—that is, the number of labourers, the duration of their work, or the amount of exertion put forth by each of them in a given time. If the demand be augmented, or the supply diminished, or if the former be increased in a greater ratio or diminished in a less ratio than the latter, the value of labour will inevitably rise.

It remains, then, for us to consider how this alteration in the relation of the two things to each other can be effected.

It might appear as if the working classes could do nothing to promote the increase of capital, since that lies in the power of capitalists alone, whose conduct, as regards saving and accumulating, will be governed entirely by an intelligent self-interest, the dictates of which it needs no representations on the part of their work-people, or any one else, to urge them to follow. But this inability of the working classes to promote the increase of capital, exists only so long as labourers and capitalists form two distinct sections of the community. The moment that the labourer himself begins to save for purposes of investment, and thus becomes, in however small a degree, a capitalist, his accumulations begin to tell upon the rate of wages. He may not, indeed, be able to perceive its action upon his own wages—no labourer or class of labourers may, in fact, be conscious of any effect produced on the rate of their remuneration; nevertheless, it is almost as certain as anything can be, that the influence has been exerted somewhere or other. Suppose the labourer has deposited his savings in a bank: the profit of a bank is made principally by lending a portion of its deposits to capitalists, who, of course, expend in wages a part of the advances thus made to them. If it should happen that the money saved by the labourer was placed in one of the Post Office Savings Banks, the effect would be much the same. Such a mode of investment is, in reality, but lending to the State, and the more the State borrows from the working classes, the less will it require to borrow from others; but other classes have money to lend, and will look out for borrowers. Those they will find in the ordinary banks of deposit, which, in turn, will lend the money so received to capitalists, and thus increase the amount the latter have to spend in wages.

There is, indeed, one way in which the working classes may more directly and immediately, though not, perhaps, more certainly, raise the rate of wages, and that is by saving, and investing their savings in Co-operative manufactories. It would be a digression to enlarge here upon the advantages of this new system of industry, but in any enumeration of these it is well that the influence of Co-operation in augmenting the earnings of the working classes themselves should not be left out of sight. Co-operation in this respect is "twice blessed." It benefits the co-operator who furnishes the capital, by giving him a much larger profit on his savings than the interest any bank could possibly afford; and it benefits the mere labourer by augmenting the fund from which his remuneration is drawn, and thus increasing the share which he individually receives.

The amount of good which the working classes might do themselves in this way is almost beyond calculation. They annually spend millions upon millions, which, by the exercise of a little care and foresight, they could save, without trenching in the least upon their real comforts and legitimate enjoyments. It would be a low estimate to place the amount they could thus lay by at one-twentieth of their income; and what an addition to the wages fund of the country would this make in a few years! This is a view of the question of saving *versus* spending which is well worth impressing on the minds of all classes. Those who spend, and especially those who spend more than they can afford, get the credit of being open-hearted and generous, while those who save are too often set down as niggardly and selfish. But saving is often the truest generosity; for it enables him who saves to be generous to those who have the strongest claim upon him: and prodigality is generally the offspring of the purest selfishness—a selfishness which prefers the gratification of a passing whim and the good opinion of worthless companions, to the abiding satisfaction that arises from a sense of independence, and the gratitude and affection of those whom ties of kindred or friendship bind us to cherish and support. But saving in a working man is deserving of commendation on this additional ground, besides those which exist in the case of persons belonging to a different rank—every shilling he puts by adds to the earnings of the class of which he is a member, and to which his first duty is owed. The prudent workman is not only fulfilling his obligations to himself, his family, and his friends, but to his order, and thus deserves the esteem of every one who can distinguish between sterling generosity and that spurious article which so often assumes its name and garb.

At the present day, too, a peculiar reason exists why the growth of capital should be encouraged in every possible way, and why the working man, therefore, should bear his share in contributing to its increase. The rapid accumulation of capital that for the last half century has been going on in Great Britain is the principal cause of the comparatively high rate of wages received by the British operative. The supply of labour has so largely augmented during that period that, but for the extraordinary increase in the demand, its value must inevitably have sunk to a very low level. Now, hitherto the capital thus accumulated sought an investment at home, and only to a very limited extent ventured into other countries. The instability and dishonesty of foreign governments, and the insecurity of investments made in places where the capitalist could not personally superintend the undertakings in which his capital was sunk, and where the principles of trade were but ill understood, rendered British speculators very reluctant to trust their capital beyond the shores of their own country. But, from circumstances which need not here be further alluded to, their confidence in foreign investments has, of late years, been much increased, and hence a great deal of capital, which formerly would have been invested at home at a moderate rate of interest, is tempted abroad by the high rate of profit that can be realised there. A very large proportion of the accumulations going on here is thus carried off, and in this state of things it would be unsafe to calculate upon any great increase in the rate of wages arising from the growth of capital in the hands of large capitalists, who will probably, year by year, embark more and more of their funds in foreign speculations. It is thus, then, that it becomes doubly important that the working men themselves should endeavour to supply the deficiency which this foreign drain will necessarily create.

* Continued from page 183.

The French Working Man and his Home.

M. Jules Simon, one of the most distinguished members of the French Legislative body, has just published a work entitled "Le Travail," in which are to be found many interesting details respecting the present condition of the working classes in France. In his preface he says:—"I wish to pronounce the eulogy of labour, and of those who labour. I desire to show that intellectual labour and manual labour are nearly related; that labour and capital have the same origin and the same rights; that the capitalist of to-day is the working man of yesterday; that the working man of to-day is the capitalist of to-morrow; that many disputes arise from a misunderstanding; that it often suffices for the solution of a problem to clearly comprehend the terms of it, and for the reconciliation of adversaries to bring them together and to teach them to know each other." In a chapter on "Building Societies" he contends that the best means of putting down the *cabaret*, which, by common consent, is the great enemy of all material and moral progress, is to make the home comfortable. After describing the pernicious influence of the *cabaret*—the public-house of the Frenchman—and the prevalence of intemperate habits amongst French working men, he proceeds to notice the efforts made by the Co-operative Associations in England, Germany, and France for the improvement of the habitations of the poor. London, he says, is of all places in the world the city where most has been done in this way:—"It, indeed, wanted it, and will want it more for a long time to come; for in a city so immense, containing a floating population so numerous, many years will pass before anything like complete reform can be effected." He admits that, in spite of many difficulties, a great deal has been done in England, and expresses his opinion that French architects and promoters of associations for the improvement of workmen's dwellings, would learn much from it. One thing in particular, according to him, is deserving of imitation—namely, that water is carried into all the rooms; "and," he adds, "cleanliness becomes gradually a habit, and very soon a necessity. With us, on the contrary, water, and consequently cleanliness, is an object of luxury."

Some years since France began to enter on the work of reform. The great piles of buildings known as "*cités ouvrières*," constructed previous

to 1850, were a failure; and not more than five or six of these barrack-like edifices found favour with the working classes. This mistake has been rectified, and instead of endeavouring to bring large numbers of families together in these buildings, it is sought to keep them apart, and this, in M. Simon's opinion, is an important step, as it favours individual liberty. He decidedly gives a preference to the plans carried out by the Mulhouse Association, which was formed in 1853, with a capital of 300,000f. in 60 shares of 5,000f. each.

In our first number we alluded to this association, and described the working men's towns on the Upper Rhine, of which it had become the parent. According to M. Simon, the good effected by such associations has been very great. He says:—"The success is complete, both in a material and moral point of view. Public-houses deserted, family affection revived, the public health improved, prove beyond doubt that, of all the means of being useful, the founders of the Mulhouse Association have chosen by far the best. The operation of the societies may be thus summed up: The houses cost nothing to those who sell them, as their advances, capital and interest, are refunded; and they cost nothing to those who buy them, because they pay for them with the rent they would have to pay in any case for houses less commodious. On either side it is impossible to do better at less cost."

Things Talked About.

The *Times* has just discovered that working men are a much more important body in the State than it had previously suspected. The electoral statistics on which the new Reform Bill is founded show, that the direct influence of the working classes in legislation is greater than even those who had the credit of best understanding the subject had surmised; and now the *Times* finds out that the indirect influence is so great, that working men are comparatively indifferent to any considerable extension of the franchise, knowing that the control of those matters which are of most immediate practical benefit to them is virtually in their own hands. The leading journal has devoted two leaders to the consideration of the Sixth Annual Report of the Amalgamated Society of Carpenters and Joiners, and is amazed at the results achieved, and the powers of organisation exhibited by men who are only day workers at mechanical trades. Mr. Mill, says the *Times*, was "right when he concluded that they (the working classes) needed no artificial protection at the hands of the Legislature. They understand, apparently, the value of organisation better than any other class, and have become adepts in maintaining it." The *Times* is almost dismayed when it dreams that a society, which has only been established six years, has nearly 6,000 members, and an annual income of £10,000; that it has branches in ninety-four towns, and that in fifty-two of that number a permanent advance in the rate of wages has been obtained by the action of the society, and in thirty towns a reduction in the hours of labour. It is noteworthy that these successes of combination have made questions of abstract politics less captivating to the thinking portion of the working classes. It has been often observed that seasons of distress are the seasons of political disturbances; and the reason is that, unable to help themselves, working men have looked for relief in merely political changes. When they feel they can help themselves they trust to themselves, and care little for theories. The *Times* is not far wide of the mark when it says:—"The whole truth of the matter is that the Trade Societies are now real Political Unions of the completest kind, only addressed directly to the regulation of those particular politics which their members have most at heart. The working classes know full well that the questions in which they are most interested concern the rate of the workman's wage and the length of his working day. They well understand, and, indeed, are not slow to affirm, that no reform which the most revolutionary demagogue could promise them would ever make itself felt like a shilling a day added to pay or an hour struck off from time." Yet this very power of managing their own affairs well—the practical application of the ability to organise, to maintain the position of the State—is the very reason why they should be admitted to the more direct political privileges they have so well earned.

Especially is this the case when, as in the case of the carpenters and joiners, they add to intelligence firmness and power of amalgamating discordant elements into a systematic whole, good temper, and a conciliatory spirit. It is pleasant to read, in the report, of the "codes of peace," as the secretary names the working rules mutually agreed to by, and equally binding on, employer and employed, and which, says Mr. Applegarth, the secretary, "I trust ere long to see adopted in every town in the kingdom, so that the general public may judge for themselves who are the aggressors in these social conflicts, and go far to prevent that which we have experienced and regretted in the past."

There has been a meeting at Blackheath to consider the present condition of the open spaces in the neighbourhood; and a committee was formed to act with the Commons' Preservation Society. The public are now disposed to act for themselves, and to compel Government to adopt measures which, had they been properly enforced years ago, would have saved many a bright spot for the general enjoyment. Greedy neighbours have filched thousands of acres from the common lands; and, unless we would have all our play-places overrun with bricks and mortar, we must bestir ourselves. Already there are signs of resistance to protective action. The parish of Lewisham denies common rights to 157 acres of Blackheath which have been hitherto open to all; the lord of the manor of Plumstead claims 154 acres in that district; Peckham Rye Common is also claimed by the lord of the manor; of Morden Common, Surrey, more than 80 acres have been recently enclosed; Tooting Common (63 acres) is in dispute between the overseers of the poor and the public; public rights over 60 acres of Mill Green Common are denied; and the same denial is given to the free character of 300 acres of Epsom Common. In Epping Forest nearly 150 acres have been enclosed in the manor of Higham Bemstead, "without any Act of Parliament, and without making any provision or compensation for the rights of the commoners or public." We need not, in this place, add to the catalogue. Enough is shown to prove the necessity of prompt action.

The last report of Mr. A. Redgrave, one of the factory inspectors, on the operation of the Factories' Act Extension Act, 1864, is very interesting. It especially refers to the children employed in the laborious occupation of fustian-cutting. One large Manchester firm wrote to the sub-inspector:—"The inconveniences we expected to arise from the introduction of the Factory Acts into our branch of manufacture, I am happy to say, have not arisen. We do not find the production at all interfered with. In short, we produce more in the same time, as the young folks are not so wearied out, as formerly, with the long hours." Another employer says:—"I am quite certain that the Act has raised the character of the trade. I would not have old times again. I have been kept until ten or half-past ten o'clock of an evening formerly waiting for one or two cutters. The hands do not come early to work of a morning in consequence of there being no united action amongst the employers; and I am sure the hands would be happier and more content if punctuality could be enforced. The hands are more united now than they were formerly. All the children in the village used to be put to cutting in preference to nursing, as they could get a little more money, and the cause of the low prices formerly was the number of children employed in the trade." So far, then, as the employers are directly concerned, the benefit of the new Act is obvious; but a contingent evil must be guarded against. Mr. Redgrave says:—"I cannot report, therefore, that the first effect of the Act has been to increase the number of school children; for, there being so many unrestricted labours, the children could find work immediately at a higher remuneration, but necessarily for longer hours, in such works. If the works affected by the Act of 1864 had been those in which restrictions were manifestly more needed than in any other, the masters would not have as much reason to complain of the very injurious effect the new regulations have had in driving from their works the youngest children to other and not less injurious works. It appears to me that this is a very strong reason why Parliament should consider, at an early period, the condition of other occupations in which young children are employed."

Once more the Spitalfields weavers are calling public attention to their distressed condition. One speaker, at a recent meeting, said that, in consequence of the low prices paid for work, 10s. a week was the utmost that could be earned, even by working fourteen or fifteen hours a day. Of course, there are two sides to every question; and we are, therefore, not surprised to find an employer writing to the public press to say that, even at the least remunerative work, a fair hand, working twelve hours a day, can make 15s. 9d. a week; at better work, £1 a week; at moire antiques, £1 10s.; and that first-rate hands may make sure of £1 15s. or £2 a week. Besides, almost every member of a family may work, and so add considerably to the amount earned. In a future number we hope to give an article throwing some light on these contrary statements. It is very singular, as showing the fluctuation of wages in different parts of the kingdom, that it is authoritatively stated that Spitalfields weavers, migrating to Lancashire, might make sure of at least double the wages they are now earning. That is rather an awkward nut for economical theorists to crack.

The New South Wales journals afford interesting instances of the growth of manufacture at the Antipodes. There seems to be an apparently inexhaustible supply of iron ore and anthracite coal; and a company formed by the union of two large firms are making arrangements for business on the largest scale. As a Sydney newspaper truly remarks, "It will be a great day for the colony when we can make our own rails, and can supply all the heavy iron-work necessary for our various public works and our great manufacturing districts." The Queensland *Daily Guardian* congratulates the colony on the appearance in the market of the first lot of Queensland sugar, which is described as "an event in our commercial affairs, and one from which, we believe, will date a great future trade."

We read, too, of the inauguration of a large boat factory at Glen Rock, Waverley, New South Wales. The proprietor, Mr. Vickery, is evidently a far-seeing man, and sees for the Australian colonies a great destiny which they may work out:—"He trusted that he and those he saw around him might be long engaged together in the work of producing colonial manufactures. This was one of those things that must be attended to if the colony was ever to progress. When he looked about him and saw so large a number of children, he felt that something ought to be done towards finding occupation for them. They could not all be shepherds or gold-diggers; some might not be strong enough for these employments, and some better occupation might be found for them than that of being buried in the bush. He thought it was high time that the colonists generally turned their attention to the management of their manufactures."

The King of Portugal has conferred a patent of nobility on an Englishman, Mr. James Mason, the proprietor of the famous copper and sulphur mines of San Domingos, where a mining colony of more than 3,000 inhabitants is now established, and which exports annually upwards of 150,000 tons of pyrites to England.

We are happy to announce that the great strike of Cornish and Devonshire miners is at an end. The men have resumed work, although the grievances they complained of have not been redressed in the way they desired; but they feel that, the matters in dispute having been prominently brought before the public, redress may be hoped for. At present, it seems, the amount of support which the proposed Miners' Association would receive is somewhat doubtful.

Mr. Dayman, the magistrate of the Wandsworth Police Court, has defined the meaning of a handicraftsman. The South Western Railway Company summoned a fireman for absenting himself from work without permission. The summons was taken out under the Masters' and Servants' Act, but the magistrate dismissed it, as he "doubted whether the driver or fireman of an engine came within any of the descriptions mentioned in the Act of Parliament. The only exception which he could find was in the case of husbandry, and that was work for the manufacture of food. There must be something manufactured to bring the case within the meaning of the word handicraftsman. For instance, a coachman in the olden time was not brought under the Act, though it required great skill to be a coachman, but yet he was not a handicraftsman."

Two companies for the provision of dwellings for the labouring classes are now before the public. One, the Suburban Village and General Dwellings Company, has secured a site of ten acres on the London, Chatham, and Dover line, and special railway privileges will be afforded. The other, the Operatives' House-building Company, contemplates the erection of blocks of buildings on the most approved principle in densely-populated thoroughfares, the occupants of the houses being themselves the shareholders of the company, and paying by instalments of 6d. a week.

COTTON SPINNING.

Whirring, whizzing, fly, ye spindles,
Under steam's unwearied hand;
Who shall say for what ye labour,
Or for whom throughout the land?

Weave ye now the swaddling wrapper,
Or the corpse's winding-sheet,
Bridal hangings, or the trapping
For the house of sorrow meet?

Often other than we reckoned
Comes to pass the full event;
Oft, in answer to our hoping,
What we feared by God is sent.

Whirring, whizzing, fly ye spindles,
Swiftly at your lord's behest;
Man proposes, God disposes—
And whatever is, is best. G. E. M.

In Paris the average sale per week of eyes intended for the human head amounts to 400. One of the leading oculists "receives" in a magnificent saloon, resplendent with gilding and mirrors.

Spanish Proverbs.—Water that has run by will turn no mill. Love, a horse, and money, carry a man through the world. Three things kill a man: a hot sun, supper, and trouble. To shave an ass is a waste of lather. If the gossip is not in her own house, she is in somebody else's. Don't speak ill of the year till it is over. The mother-in-law forgets she was once a daughter-in-law. A mewing cat is no monser. Men are as grateful for kind deeds as the sea is when you fling it a cup of water.

Co-operative Intelligence.

Rothwell (Northamptonshire) Co-operative Society.—According to the twenty-first quarterly report of this association, it is progressing very favourably. The business done during the quarter was £475 16s., being an increase over the previous quarter of £20 6s., and which, after paying wages and expenses of management, gave a net profit of £39 13s. The business done during the past year has been £1,694 6s. 3d., against £1,267 9s. 8d. the year previous, showing an increase of business of £426 16s. 7d., which, after paying wages and expenses of management, gave a net profit of £144 17s. 8d., which has been disposed of as follows:—£17 3s. interest, at 5 per cent. per annum; £108 5s. 6d. dividend on members' purchases, and £2 17s. 3d. on non-members' ditto; leaving a balance of £16 11s. 11d., which has been made over to the reserve fund.

Husband's Bosworth Industrial and Provident Society.—The seventh quarterly report of this society shows that the business transacted at the store during the past quarter amounted to £267 19s. 2d., of which sum £160 0s. 11d. was laid out by members, and £107 18s. 3d. by non-members. The balance-sheet for the sixth quarter displayed a deficiency of upwards of £22; the present one shows the debt paid off and a surplus, after paying all expenses of management, rent, &c., of £6 15s. 11½d., out of which a bonus of 8d. in the pound on members' purchases was declared and paid, leaving a balance of £1 10s. 2½d. to carry forward to the eighth quarter.

Co-operation and the Cotton Panic.—The fifteenth annual report of the Oldham Industrial Co-operative Society for the past year gives the following table of sales, in order to show the influence of the late American war upon the society's operations:—

Departments.	1861.	1862.	1863.	1864.	1865.
Grocery . . .	£43,192	£36,871	£30,467	£37,333	£48,209
Butchery . .	2,256	2,986	3,472	5,732	5,223
Boot, shoe, and clog . . .	1,167	814	819	1,322	1,430
Drapery . .	1,060	1,231	1,010	3,586	5,744
Total for each year . . .	47,675	41,902	36,368	47,973	60,606
Net profit . .	3,966	3,141	3,187	4,987	6,438
Amount share capital at end of each year	7,603	6,868	7,410	10,890	15,567

Moulton, Northampton.—The business transacted by this society during the past quarter amounted to £997 18s. 11d.

Little Brington.—The last balance-sheet of this society shows that the receipts for the quarter in the grocery and drapery department have been £558, and in the butchering business, £141; total, £699, being an increase over the previous quarter of £90, realising a net profit of £52 7s. 7d., which, after paying the usual five per cent. on paid-up capital, and allowing £2 for the reduction of fixed stock, gives a dividend of 1s. 7d. in the pound. The butchering business has been a decided success. Since the society began butchering in October, 1864, to the end of last quarter, they have killed 2 beasts, 95 sheep, and 28 pigs.

Wellingborough.—The annual report for 1865 of the Wellingborough Industrial Co-operative Society shows that Co-operative principles are gaining ground in that part of the country. During the year the amount of wholesale business was £154 16s. 1½d.; amount of retail business, £4,030 5s. 1½d.; total, £4,185 1s. 2¾d. Net profits during the year, £272 1s. 2¾d.; dividends to members, £153 9s. 4½d.; dividends to non-members, £39 6s. 6d.; interest on shares, £56 10s.; apportioned for the redemption of fixed stock, £10 2s. 5d.; apportioned for the redemption of estate, £3 11s. 9d.; withdrawals on shares during the year, £82 10s. 4d.; increase in share capital during the year, £167 12s. 3d. The society's capital exceeds £1,300, of which nearly £500 is invested in freehold property.

General Information.

CLUBS AND INSTITUTES.

Leicester.—The Working Man's Club and Institute is in a fair way of starting well. The club house, No. 1, St. Martin's, is now open, and the resident manager is accessible to persons who may desire information. The formal opening took place on the Thursday before Good Friday, and on Easter Monday the full operations of the club were to commence. Working men may join either as weekly, monthly, quarterly, or annual subscribers, on any evening after six o'clock. The general public has been appealed to for donations towards fitting up the premises, and the sum of £80 has been received, so that the committee hope to make up the requisite amount of £100 towards the preliminary expenses, independently of the subscriptions and donations of the members.

Malvern.—On the 22nd ultimo a meeting was held in Malvern, to promote the cause of education among the working classes, by the erection of a suitable hall for lectures, and other purposes. The Right Hon. Lord Lyttelton, the Lord-Lieutenant of Worcestershire, was in the chair. After an able speech from the chairman, addresses were delivered by Dr. Grindrod, Sir Henry Lambert, Bart., W. E. Dowdeswell, Esq., M.P., C. R. Coxwell, Esq., J.P., the Rev. P. Hoskin, H. Lakin, Esq., Drs. Williams, Fernie, and others. Resolutions were passed in favour of the object, and a committee formed. A valuable site for the hall is offered gratuitously by W. Shoobridge, Esq., and Mrs. Shoobridge.

Newcastle-on-Tyne Working Men's Club.—The annual meeting of the members of the Newcastle Working Men's Club was held in the lecture-room of the institution, Nelson Street, on Tuesday evening, the 20th March. There was a good attendance. Mr. Edmund J. Blake, assistant-secretary, read the report of the committee for the past quarter, from which we learn that the number of members during that period has been 100 quarterly, 1 two-monthly, 22 monthly, and 3,674 weekly, making a total average weekly of 398 members. This shows an increase on the quarter of 95 members, and proves that the club is the means of affording intellectual instruction to a large number of the working classes. A library has been opened in the club, and it now contains 430 volumes. The books are kept in the conversation-room, and the library is open free to all, except monthly and weekly members. Nearly £25 have been expended, and there is still £17 in hand to be devoted to the object. With a view to procure standard works at a cheap rate, the committee have made an application to the trustees of "Dame Hussey's Charity," in order to participate in its privileges. There is every reason to hope that the application will be successful. The rules which were adopted at the last quarterly meeting have been passed by Mr. Tidd Pratt, registrar, with some slight alterations, which will have to be submitted to a special meeting of the members previous to getting the club registered and the rules printed. The Monday evening readings, Wednesday dramatic entertainments, &c., have been very successful. The committee regret very much the smallness of the lecture-room, and have endeavoured to get it enlarged, but without success. It is to be hoped that before the next season a larger room will be provided. The attendance in the news-room increases week after week. A drawing-class was attempted to be formed, but owing to the small number who joined, it was not proceeded with. A debating-class has been formed, and the committee wish to draw the attention of members to this class, believing that great good may be derived from the interchange of thought. The amusement rooms have been well attended, and have afforded healthy recreation to a large section of the members, bagatelle and draughts having been the most patronised. The committee have experienced difficulty at various times in preserving order, through the unruly conduct of some of the junior members, and would earnestly urge upon the members generally the desirability of placing the club in such a financial position as to warrant the committee in engaging a resident superintendent, feeling confident that it would conduce to the interests and welfare of the club. During the quarter an instrumental band has been formed, numbering 17 members, and is making rapid progress under the able tuition of Mr. T. S. Watson. Mr. Robert Fisher, the sub-treasurer, gave some interesting particulars in detail as to the working of the club during the year, to show that it was self-supporting. There were a few outstanding accounts amounting to £38 4s. 9d., these having been rendered only a day or two ago. Mr. Fisher showed, however, that the extraordinary expenses during the year exceeded the outstanding accounts. During the year 11,276 weekly tickets had been sold, 418 quarterly, 31 bi-monthly, 62 monthly, and 1 annual. The total amount realised by the sale of tickets was £129 2s. 10d.

Northampton Working Men's Club.—In a circular just published, the committee state that about eighteen months ago, through the liberality of Major White Melville, a movement was set on foot for establishing a Working Men's Club, where, for the small sum of sixpence per quarter, members could enjoy the advantages of a reading-room, supplied with daily and local papers, weekly and monthly periodicals, books, &c., and also find the means of innocent recreation in a variety of games. In addition to this, tea and coffee is provided at cost price. The house originally rented for the use of the club being too small, it was determined to purchase larger and more eligible premises, with a considerable space of ground behind, where a gymnasium and other out-door amusements could be provided. Major Melville handsomely contributed £500 in the first instance, and has since added £100 towards the purchase of the club-house. The cost of the new premises was £1,050, in addition to which, it is estimated, £500 will be required to carry out the intentions of the committee. A subscription has been commenced for the purpose of raising the remaining £950.

Pendleton (Manchester) Working People's Association.—The committee of this association have just secured a site for a new hall and gymnasium, upon a vacant plot of land in John Street, near to Broad Street. The cost of the hall will be about £1,200, one-half of which sum has been already promised by several gentlemen connected with the district. As, however, the committee are desirous that those for whose benefit the institution is more especially designed should have a pecuniary interest in the undertaking, a system has been organised for obtaining from working people weekly contributions towards the building fund. While presenting the leading features of a Working Man's Club, attention will be given to the circulation of good reading, to the extending the benefits of the penny bank system, the holding of temperance and other meetings, providing night schools for males and females, Saturday evening entertainments, and out-door means of recreation. The association numbers at present 800 members, and has upwards of 100 workers employed in its various agencies. During the past three years about £600 have been expended in its operations.

Newcastle Working Men's Club.—A capital entertainment was recently given at this popular and flourishing club, the programme being of the most varied and interesting character. The lecture hall of the institution was crowded. Mr. D. Robertson presided. Mr. George Dodds, Jun., presided at the pianoforte. The usual vote of thanks brought to a close a very pleasant entertainment.

Hollinwood Working Men's Club and Institute.—A meeting was lately held by the committee of the Working Men's Club and Institute, in the Primitive Methodist School, Hollinwood. The principal business done was reporting the progress of the canvass of the various firms and workshops. The secretary stated that some of the workshops had not yet completed their canvass, whilst others in the neighbourhood had not, as yet, interested themselves in the matter, but were expected to do so. More than £60, he said, had been promised by the working men, and about one-third had already been collected, which he was sure was very complimentary to the working men, and would show to the general public that they really were in earnest. It was afterwards agreed by the meeting that Mr. Mellor and Mr. John Wild, of Factory Fold, be appointed to canvass the general public for subscriptions. After other business of minor importance had been disposed of, the meeting was adjourned. During the week £24 1s. had been deposited in the post-office savings bank in the name of the trustees, the gifts of working men only. J. T. Hibbert, Esq., M.P., has signified his intention of subscribing £5 towards the object, and liberal subscriptions are promised by gentlemen of Hollinwood, whose names at present are withheld; but in due course a list of subscriptions given is intended to be published.

Leominster.—A public meeting was held in this town on the 23rd ult., called by requisition to the Mayor, for the purpose of considering the desirableness of establishing a Working Men's Club and Institute. The requisition was signed by more than 100 people, chiefly working men. The worshipful the Mayor presided, and was supported by several of the leading inhabitants of the town. The Rev. H. Solly delivered an address, explanatory of the objects, after which the Rev. A. Porter, Mr. Alexander, and other gentlemen and working men, moved and seconded resolutions in favour of the object, which, after a little opposition, were unanimously carried. The proceedings closed with votes of thanks to Mr. Solly and the Mayor.

STRIKES AND WAGES.

Strike of the Edinburgh Tailors.—The journeymen tailors of Edinburgh, to the number of 1,000, recently turned out on strike. The employers in the city were previously served by the committee with copies of a revised statement of prices, together with an intimation that if the statement were not adopted they would leave work in the beginning of the following week. At a meeting comprising nearly every employer in Edinburgh, they unanimously rejected the statement that the time stated therein is, in many cases, much greater than that really required by an average workman for the performance of the work specified, and that, when the work is carried on with the assistance of machines, payment is asked for work which the workman does not perform. The employers intimated by advertisement that they were prepared at once to begin paying an increased rate of wages which they had agreed upon, calculated upon the basis of the statement they (the masters) had prepared. The time allowed in this statement is, they allege, fair, and even liberal. On the other hand, the men maintain that, while the masters profess to give a rise of 1d. per hour, they are so reducing the time for making the articles of clothing that the rise is merely nominal. This, they admit, does not apply to the dress-coat department; but they hold that the sewing-machine tariff prepared by the masters takes away any advantage even in that class of work. A large number of the men have left Edinburgh for London and Liverpool. We understand that several masters have already acceded to the demands of the men.

Strike of House Carpenters.—In August last the operative house carpenters and joiners of Aberdeen asked from their employers a rise of 2s. a week on the average wages, to commence on the 1st of March—that is, seven months after the intimation. The masters declined to accede to this, but offered a rise of 1s. This was refused by a number of the men, and accordingly some 200 of their number struck work a few days since. It was

found, however, that the masters had come to an agreement that none of them would employ any man who had left his former employer on account of this dispute about wages; and this being considered an approximation to what was denounced in England as the "ticket-of-leave" system, it has been keenly resented by the men, and a considerable number who had not struck on account of the wages dispute have given up work till the obnoxious agreement should be withdrawn. In all, probably well on to 300 men are thus "out." The ship joiners have had their demand conceded to them by their employers generally, so that they remain at work. The average wage in Aberdeen is about 20s. a week. In other branches of trade there is some demand for an advance of wages.

The Advance of Wages Movement among the Farriers.—A crowded meeting of the journeymen farriers of the metropolis was held recently in Cambridge Hall, Newman Street, Oxford Street, for the purpose of adopting measures to procure from their employers an increase in the rate of their weekly wages. Mr. Benneworth, the chairman, stated that a movement had for some considerable time past been in existence in connection with the farrier trade for an increase in the rate of their wages, but in consequence of disunion among themselves, it had never come to anything. Of late, however, that matter had been taken up in a better spirit, and he was happy to say there was a prospect of success. The secretary read a report of the proceedings which had already taken place in connection with the movement. At the last meeting the committee was empowered to seek the co-operation of non-society men, and to bring about that desirable object the committee had zealously laboured. Their chief difficulty had been to get at the non-society men, as they were distributed all over London. As a rule, they found that where the men were the worst paid there they seemed to exhibit the least spirit or desire to attempt to help themselves, being afraid lest they should lose the miserable pittance they were now receiving. The report being adopted, Mr. Hierons moved a resolution, which was carried, to the effect that in the opinion of the meeting it was necessary, for the better protection and regulation of the trade, that a union should be formed of society and non-society men, the object of which union should be to bring about a more equal rate of wages, and give to every man in the trade a fair day's pay for a fair day's work. A memorial was then adopted to the employers in terms of the previous resolution, and after the transaction of some other business relating to the management of the union, the proceedings terminated.

Close of the Strike in the Woolwich Building Trades.—This strike for the one o'clock time on Saturdays, which has lasted four weeks, has just been brought to a close by the employers conceding the terms of the men. The bulk of the men on strike resumed work a few days ago, on the above understanding, but after being at work a few hours were informed that although the one o'clock time had been conceded, the wages would be reduced in proportion. The consequence of this notice was that the great body of the men again turned out, while of the 200 that remained in, one and all declared they would strike at the end of the week, if the old rate of wages was not paid. The result was, that when Saturday came, the men remaining at work were paid the same rate of wages as they were receiving when they worked till four o'clock, and finding this to be the case, the men, as a body, all resumed work at the beginning of last week, and the building trade in the town and district has now resumed its wonted aspect.

Meeting of Brass-finishers and Gas-fitters.—A general meeting of the operatives in the above branches of trade was held recently at the "Two Brewers," Bunhill Row, St. Luke's, when a trade society was established, and resolutions adopted declaring an advance of wages on the present rates necessary, and that measures should be at once adopted for obtaining the same. A committee of sixteen was appointed to carry on the movement, and to report to an adjourned meeting. The greatest enthusiasm and unanimity prevailed.

Threatened Strike amongst the London Tailors.—On Monday, the 26th ult., upwards of 1,200 of the *employés* of the principal master tailors in London met together in the Cambridge Hall, Newman Street, Oxford Street, for the purpose of taking steps with respect to a circular, or "log," recently issued by Mr. Poole, of Saville Row, to the several hundred journeymen in his employ. It appears that some time ago Mr. Poole's men petitioned their employer for an advance of wages, on the ground that, under the then system of task work, they could not, even in the busy season, earn on the average more than sixpence per hour, and they therefore, considering the paucity of work in the winter season, asked for such an increase as would enable an average workman to earn sevenpence per hour. Mr. Poole submitted this memorial to the Master Tailors' Association, of which he was the chairman, and many of the members were willing to comply with the request, but the matter was left in abeyance. Nothing further was heard of it until the 24th ult., when Mr. Poole submitted to his men a "log," or list of prices to be paid for garments made up. The men were told they must either accept that list of prices or leave the shop when the work in hand was finished. It was found, however, that the sevenpence per hour they had prayed for was totally ignored, and that Mr. Poole had altered the list of prices so that, whilst there was an advance of price in the making of certain garments, that for other garments was reduced, so that in the aggregate the journeyman was really in a worse position under the proposed new system than he had been under the old one. After several speeches had been made, Michael Charlesworth seconded the following resolution:—"That it is the opinion of this meeting that the list of prices, as stated by the committee of the Journeymen Tailors' Protection Association, be adopted, and that a deputation consisting of the committee, shall wait upon Mr. Poole, to inform him of the determination arrived at." An amendment was proposed and seconded, that the deputation inform Mr. Poole that the London journeymen tailors were willing to accept the advanced prices on the garments advanced in price, and abide by the old prices with the other garments. The motion was carried with but ten dissentients. It was then unanimously resolved to withdraw all the men from Messrs. Poole's establishment until the "log" submitted by the committee be complied with.

EXHIBITIONS.

The Dudley and Midland Fine Arts, Scientific, and Industrial Exhibition is announced to be opened in July next, at Dudley. The Exhibition will include three departments—Fine Arts, Scientific, and Local Industries. The latter department will consist mainly of two classes—the productions of artisans, and articles exhibited by manufacturers. In the first class, money prizes varying in value from 10s. to £5, with certificates, will be awarded to artisans producing articles of merit in that particular branch of trade in which they are engaged; such articles being entirely either the design or workmanship, or the design and workmanship, of the exhibitors, and made at their cost. Also to artisans producing articles of merit, unconnected with their daily occupation, either the design or workmanship, or the design and workmanship, of the exhibitors, and produced at their sole cost. Preference will be given to the following:—Designs relating to the iron, hardware, glass, or other manufactures of the district, and specially designs showing the application of ornament to articles of domestic use; useful inventions; improvements in machinery, &c.; wood and other carvings; inlaid work; models of machinery, buildings, &c. The district from which manufactured products, or artisans' work, will be received, will be the South Staffordshire Mineral Field, bounded by the towns of Kinver, Kingswinford, Wolverhampton, Cannock, Brownhills, Walsall, Handsworth, Halesowen, and Hagley, all inclusive; but scientific apparatus, works of art, &c., will be eligible from any place, subject to the approval of the committee.

EMIGRATION.

In a letter from Queensland, a recent emigrant says:—"A very large majority of the people who come out here are smart, clever, enterprising, and not over conscientious men from New South Wales, Victoria, South Australia, New Zealand, America, and England, with a very large sprinkling of Scotch; and unless a person is prepared to pit himself against these, he had better not attempt to speculate out here, or if he does, he is safe to be ruined. I allude now more particularly to a person coming out with capital. The labourer and mechanic—and when I say mechanic, I mean the carpenter, bricklayer, stonecutter, blacksmith, wheelwright, &c.—these people, knowing their work, and having health and strength to perform it, can always make sure of plenty of work at good wages, and by economy, industry, and sobriety, must inevitably, in a few years, become comparatively independent of working for a master. The weakly, the lazy, the drunkard, the faint-hearted, and that very numerous class in all countries who don't know how to take care of their money when they have earned it, are no better off in Queensland than they are everywhere else—except that no one is allowed to starve here if it is known. We have no parish workhouses, but we have benevolent institutions, partly supported by the state and partly by private contributions; and the fact of a person being destitute, from whatever cause it may have arisen, is sufficient to obtain him admission to, or a weekly allowance from, one of these institutions. Very few, except widows with small children, orphans, sick persons, the old, the lame, and the blind, ever take advantage of these charities, as it is here held by all classes to be a disgrace to accept charity."

Scarcity of Servants at Hokitika.—The *West Coast Times* of the 8th January says:—"At the present time the demand here for domestic servants is great, and the wages something almost fabulous. Any woman can readily obtain from £2 per week upwards, and if a couple of hundred were landed to-morrow, they need not be out of situations two days. In Melbourne wages are quoted at from £25 to £35 per annum; here we may safely quote them at from £100 to £150 for the same term; and yet, even at that rate, respectable servants are not to be got. The consequence is, that many families who are able and willing to pay handsomely for labour cannot obtain it; and yet, in the Australian colonies, South Australia particularly, female labour goes begging, so much so, in fact, that assisted female immigration is stopped for a period."

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

FIRE BARRIERS.

To the Editor of the Working Man.

Sir,—In my letter which you did me the service of inserting in No. 11 of your journal, I endeavoured to call attention to the inventions wanted at Industrial Exhibitions, and ventured to say there was one which it would be a mercy to produce. I will state what that is. It is a fixed fire barrier, with the screen part movable. There are fire-screens already, but they are portable and troublesome—being portable, they are commonly away and occupying the front of the fire-grate; and when in its place it is an impediment to all cooking before the fire, which occasions its incessant removal. What is wanted is a light frame barrier, so constructed as to hang upon the front of the grate and remain firmly there, but capable of being removed entirely when the grate requires to be cleaned or the ashes removed. This screen would require to project about six inches from the grate, and go down to the ground; but so much of the front of it as is equal in dimensions to the size of the bars of the grate should be capable of sliding, so as to be depressed by the hand whenever access to the fire was required, for the purpose of toasting, cooking, placing sad-irons for heating, or hanging a rack upon the bars to hold a Dutch oven, or any other purpose. The part of the screen thus capable of being depressed should be capable of being raised with entire ease, and remain in its raised position without tendency to fall.

Such a screen would be a permanent fire barrier. Whether up or down, it would effectually prevent crinoline dresses ever coming in contact with the fire. It would keep children's clothes from ever being ignited. Such a barrier should be a necessary part of every fire-grate, whether in kitchen, or parlour, or bedroom. If made with varying degrees of elegance, it would be as ornamental as it would be useful. It ought to be regarded as essential to every grate as a fender. After the frightful experience of the last four years of deaths by fire of women and children in every rank of life, an Act of Parliament ought to be passed, compelling the makers of grates and stoves to affix in the future a fire barrier of some such kind as the one here described, to every grate or stove they send out. We make Acts of Parliament to repress suttee in India, and oblige the Indian officials to see to its enforcement. We interfere with the religious faith of the Hindoo people, and even risk the mutiny of a province, to carry out our notions of humanity by protecting women from death by fire; while, in our own country, 500 women perish miserably by the most horrible deaths for one suttee widow who expires in flames in India. Since deaths by fire in England are entirely preventable by some such arrangement as the one herein indicated, an Act of Parliament would be an act of mercy. But the invention must precede the Act, and therefore I beg to commend the idea to ingenious mechanics.—I am, &c.,

Overlooker.

MR. CLAY'S EDUCATIONAL FRANCHISE BILL.

To the Editor of the Working Man.

Sir,—I can scarcely describe the satisfaction with which I read your article, "Opinions Wanted in Parliament," for I have often thought that such a plan ought to be adopted, to make known to our law-makers the opinion of the country on those great questions which affect us so deeply. I was also much struck with the article contained in No. 5 of the Working Man, "Political Results of Intelligence," for in it I think we have good ground whereon to stand in defence of Mr. Clay's Bill, which has my heartiest wish of success.

Now, sir, I find in the article referred to in No. 5 that the reason given for extending the franchise is, that the working class have greatly advanced in intelligence, in practical good sense, in respect for law, and in the interest they take in public affairs: this is admitted by both sections of the House of Commons. Mr. Gladstone, in his speech when bringing in his Reform Bill, alludes to the same. Now, sir, if it is this intelligence, &c., which is the alleged reason for admitting a portion of the working class to the electoral list, how can they propose to extend it to inanimate material? Are they sure that, by any other plan than Mr. Clay's Bill, they will put the intelligent portion of the community in possession of the franchise? I say it is just as likely, ay, and far more likely, that it will not; for this intelligence and practical good sense, which the working class are said to possess, teaches them they must economise, and live in cheaper houses than the Government Bill proposes; for a great portion of their earnings are consumed in taxes and supporting measures from which they recoil with shame and disgust.

I see nothing in Mr. Clay's Bill that any one should not vote for, although I find several of your correspondents have proposed many alterations to it. I scarcely agree with any of them, for I find none better than the proposition of the Bill; and I do think that the members of the Whitechurch Working Men's Club have done as much to damage the working class in the eye of Government as Mr. Lowe's speech. They say, sir, that they would not have the franchise of intelligence without the ballot, as they feel sure they would be obliged to vote the same way as the masters. I say that any man who could not stand in the face of the world and register his vote is not a fit

person to be entrusted with a vote. I am sorry to hear working men give expression to such sentiments. Let us throw off this mammon-worship and be men; our masters will respect us for it after.—Wishing the Working Man every success, I am, Sir, yours respectfully,

A Workman.

To the Editor of the Working Man.

Sir,—As you have requested working men to give publicity to their opinions concerning Mr. Clay's Bill, I submit mine to your notice. I am a thorough working man, and I have talked to many others of my class concerning the extension of the franchise. Most men seem to think that every person should have a voice in framing the laws by which the nation is governed, in which idea I also agree; but there are many difficulties yet to be overcome before every man can have a vote at elections. I fully agree with an intellectual franchise, although I believe Mr. Clay's Bill will soon be thrown out of Parliament. Every parish should be provided with a registrar of electors, who should supply every man wishing to vote with a printed form in which he, the candidate, should state in his own handwriting his desire to vote, what he considers to be his qualifications for holding such a trust, whether he is a member of any society, church, institute, or club; he should also say whether he has ever been committed to prison for any offence, debt, or otherwise—if so, when the offence or otherwise was committed, and of what nature. In each county, borough, and city, there should be a committee or board of directors appointed, to whom the registrars' forms should be sent when filled up, who should have the power of disapproving any candidate subject to an Act of Parliament framed *upon that subject* for the guidance of the directors. Every candidate when approved should be subjected to an examination in reading, writing from dictation, spelling, the first four rules in arithmetic, and English history. Should he be able to read properly (the Bible, I would say), write intelligibly, and spell words with tolerable correctness, and have enough knowledge of the history of England to compare the present with the past, he should be entitled to a vote at the next election. Any man who would not be at the trouble to get the printed *forms*, fill them up, be examined, and comply with any other little thing that the Government found necessary, would be a man of very little principle, and not worth troubling about, providing the county, borough, or city, be at all expense incurred in getting or sending the forms to be filled up, or being examined in his educational abilities.—Yours truly,

William Frederic Wallis.

Bunstrucks Hill, Tring, March 27th, 1866.

To the Editor of the Working Man.

Sir,—I, too, like others of your working readers, feel interested in the Bill introduced into the House of Commons by Mr. Clay. But it seems to me that a great deal more importance is attached to the franchise than it is worth. I should like to ask my working brothers—as I have often asked myself—what is the franchise, and what will it do for me that I cannot do for myself? To my first question I make answer, it will enable me to vote for one or two members once in three or five years; and to my second I reply, it will enable me to vote for men who would promise to work to lessen taxation, to support measures that would remove temptation to vice and crime out of the way of the people, encourage colonial reform, so that the means of production may be increased, and at the same time remove some of the surplus population. These are some of the things the franchise would do for me that I could not do for myself.

With regard to Mr. Clay's Educational Franchise, I like the principle, because it would recognise knowledge, and, as knowledge is power, it would increase the desire for knowledge. But I would like to add to Mr. Clay's measure a moral test. If a man neglected to educate his children, neglected to pay his debts, or broke the laws of his country, he should be disqualified to possess the franchise for five years—that would acknowledge worth, not birth.

But, it seems to me, that whatever test is adopted—whether it is an educational test or rental, or whatever test it be—it will fall far short of the wants and requirements of the people without the ballot.

I believe, sir, that all governments are the reflex of the people; in fact, that the function of government is negative and restrictive, rather than positive and active; that it depends more upon the character of its men than it does upon the form of government. I believe it to be more important for the welfare of the people for each individual to try to reform himself.

But, sir, in conclusion, I would add it is my belief that there are thousands of my brothers of toil who are both intelligent and moral enough to be possessors of the franchise, who would feel that dignity of citizenship that a man ought to feel.

Allow me to add, that it is seed such as is sown in the Working Man that will work the reforms most needed. Wishing it every success, I remain, yours respectfully,

H. Roffe.

1, *Ram Square, Red Lion Street, Wandsworth, S.W.*

To the Editor of the Working Man.

Sir,—The correspondence in the Working Man on Mr. Clay's Educational Franchise Bill shows that such a measure is viewed with great favour by many of those who are especially to be benefited by it. There are few people now who wish to deprive a man, who is fitted for it, of a share in the government of the country. The principle is admitted; it is a question of details. The exercise of the franchise is a trust, and those who possess it should be qualified to fulfil that trust intelligently. This has always been kept in view in the building up of the constitution of our country. Property was made its basis, and wisely so, for that was then the only test of a man's fitness generally applicable. It is quite true that property and mental culture do not always go together; but if we take those who possess property, we shall find that, as a class, they are more intelligent than those who do not possess it; and even when ignorant, their having property proves that they know how to exercise self-denial: they show that they know how to make the future predominate over the present: this is in itself a virtue, but like many other virtues when carried to excess it becomes a vice. We have a remarkable proof of this in the case of our 40s. freeholders. I have had considerable opportunities of observing the way in which they exercise the right of voting, and I have invariably found that, with few exceptions, the illiterate among them look upon the possession of a vote, not as a trust, but as a property to be made the most of. I have not had opportunities of making observations with respect to borough elections; I can, therefore, only judge by inference. We find in small boroughs that nearly the whole of those on the register exercise the right to vote; in large constituencies there are great numbers who do not do so. Now, in small boroughs votes are often purchased by a direct money payment; in large ones they are bought through the publicans. The publican's tap is not so tempting a bait as the hard coin, and, therefore, the inducement to the ignorant and selfish to record their votes is not sufficiently great. It appears, then, that the mere possession of property is not sufficient, and, therefore, that an educational franchise is also required. But I would take a wider basis than Mr. Clay, though I would scarcely go so low. His qualification seems to be the same as is required for the fifth standard in our national schools. Now, a boy who has been kept regularly to school will pass that standard at ten years of age; in one year more he will pass the sixth standard; and even should he go to work at ten, he might attend an evening school, and still pass the sixth standard at the end of the year. With all the educational advantages of the present day, he may keep up his acquirements after leaving school, even if he does not increase them. Neither fractions nor decimals are required in the sixth standard, but to work sums in practice and bills of parcels, to read a paragraph from a book or newspaper, and to write one from dictation; certainly not too much to require.

With respect, therefore, to the Educational franchise, I would admit as qualified all who had taken a degree at any university in the United Kingdom; all medical men holding a diploma; all schoolmasters holding either a Government certificate or a diploma from the College of Preceptors; all who had passed the Oxford or Cambridge Middle-class Examinations; and all those holding a certificate from the Society of Arts. All others should be required to pass an examination similar to that now required in the sixth standard.

With respect to property qualification, all those who had qualified under the Educational franchise should be required to hold a property qualification, as at present, or they should have insured their lives for not less than £100, or bought an annuity of £20 per year, and have paid three years' premiums in either case, or should have not less than £50 invested. Under this plan, none would be excluded who chose to make an effort to obtain a vote—none others ought to be admitted. Of course those who marry before they are out of their teens, and without money enough beforehand to pay the marriage fees—as too many do—would have great difficulty in getting on the register.

Before concluding, allow me to make a few remarks on the progress of education. I have now been master of a national school seventeen years, and I can safely assert that not ten per cent. of the children of the purely labouring classes stay at school to reach the fourth standard, where compound rules (money) are learned. I have charge of a school where no payment of any kind is required, and where every inducement is held out by the manager and employer of labour in the district to the parents to send their children; yet, in spite of all this, there are hundreds growing up who may be said to be unable to read and write, for it is found that those who leave school before they can read and write with tolerable facility, almost invariably cease to practise the art, till they at last become unable to do so. Nor must it be said that it is making education a gift that causes it to be undervalued. I was master of a school for fourteen years where a small payment was required, and, though only one penny per week, it was continually used as a reason for not sending children to school. There are, as we are all well aware, plenty of noble exceptions among the working classes. I have known people deny themselves the common necessaries of life for the sake of securing an education for their children. Such men are truly noble, though untitled. Men of this self-denying stamp, in whatever rank found, are the mainstay of a country, and none of them ought to be excluded from a share in its government.

By holding out an inducement such as I have sketched in the foregoing, I am satisfied a great impetus would be given to the cause of education. It will take several generations to educate the people at the rate of progress we are now making; either greater inducements must be held out, or compulsory powers must be used. I speak from considerable experience in agricultural and mining districts. I have not gathered my information from books: I have followed the plough; I am, in a great measure, self-educated. I am proud of my country; I want no violent changes; I wish to see improvement, not destruction. I have taken a high position as a teacher; I have made some provision for the future; I have paid income-tax for several years; and yet, because I do not choose to be pestered with a little 40s. freehold, I have no vote; but I would rather remain without one than be admitted along with the ignorant and selfish.—I am, Sir, yours, &c., S.

To the Editor of the Working Man.

Sir,—I do not share the views of your correspondents who, on one side, say that the Bill of Mr. Clay, if passed, would be sure to be put on the shelf, nor of those who believe it would be hailed as a boon, and be accepted immediately. The idea is too novel, and the prejudices which are sure to obtain must be combated with earnestness and by earnest men. I hold the opinion, with many, that the possession of the franchise is the birthright of every Englishman. At the same time, I believe it would be no good to him without that other birthright—a good education. The passing of Mr. Clay's Bill would lead to universal suffrage, and to what I consider of more importance—universal education. Seeing the rapid progress education has made of late, I do not think it would take a long time to obtain both. Some whom I have asked about the Bill agree with me that it is the best, and in the best form. I, at least, am not above conversion, if it can be shown that there is a better form. Some, on the contrary, say they do not care about a vote. It would be no good to them; especially without the ballot. All are for the ballot. I never yet succeeded in engaging a man in conversation about the franchise, who did not want the ballot for protection. I have no faith in this Bill passing into law, unless great pressure can be brought to bear upon the House of Commons. I believe there are but few Members of Parliament who are in earnest about enfranchising a larger number of people.

I will do my best in helping to form a league, and shall be happy to meet a number of working men to discuss the matter. A number of small meetings might be held of men in different neighbourhoods—a limited number might meet at some one of our homes. A conference could be held afterwards of all the men who had attended the local meetings in London in some central place. Other large towns could do the same, and we should soon have a large society to do the work.

W. B.

TO CORRESPONDENTS.

R. M. H.—Hair pencils, or brushes, are made of the finer hairs of the marten, badger, &c., for the purposes of the artist; or of the swine, hog, &c., for coarser work. They are mounted in quills or tin, according to their size or the use to which they are appropriated. A perfect pencil should swell all round from the base, and diminish upwards to a fine point, which should be solely produced by the tapering of the tips of each hair towards the centre, the entire form taking a conical shape.

Mechanic.—The population of Canada is, according to the census of 1861, 2,507,657. It is a favourite field for emigration.

R. B. Nichol.—It is not for us to state what books you ought to study for the purpose of gaining a knowledge of the question. Our primary object is to elicit the actual opinions of working men themselves, together with the facts or reasons on which those opinions are based.

M. T. Morrell.—We are glad to find the services of Dr. Holland are being recognised by the more intelligent class of working men, but it is doubtful whether the project alluded to by you would be successful at present.

Chas. Wilkinson.—The lines possess merit, but the style is unsuitable for our columns.

B. F.—The essays are intended to be, as much as possible, expressions of working-class thought upon the subjects given. (See reply to R. B. Nichol.)

A Subscriber (Long Lane).—The usual method of hardening steel is to heat it to a cherry redness, and then plunge it into cold water. Steel is a very capricious substance to deal with, and requires much experience in working to obtain any desired effect.

John Smith.—The introduction of the aniline dyes has produced quite a revolution in the art of dyeing. The old processes are given in Napier's treatise, in the *Encyclopædia Metropolitana*.

George Martin.—French polish is the best thing for your purpose, applied in the usual manner, which you must learn by seeing it done by an experienced workman. Description would not avail.

Amateur.—We do not know of any "best market" for inlaid wood-work. A walk through Clerkenwell will introduce you to a good many manufacturers of this kind of product.

G. P. H. F.—Sims's "Treatise on Mathematical Instruments," and Baker's "Mensuration."

H. A.—It is impossible to answer your inquiries in this brief space. A treatise would be required.

J. W. Bampton.—Procure the Parliamentary Report on the Charities' Commission.

J. Orwell.—A good, hard cement for uniting stone flagging, lining cisterns, &c., is made of 90 lb. of well burned brick, reduced to powder, mixed with 7 lb. of litharge, and sufficient drying linseed oil. The cement is applied in the same manner as plaster, the substance to be covered being previously moistened with a sponge. If any flaws occur in drying, they must be filled up with the cement, which hardens in three or four days.

Chisel.—Gilders' composition for frames is made of ten pounds best Scotch or Russian glue, soaked, and boiled in a very little water: it should be at least four times as thick as carpenters' glue. Take six pounds of powdered resin, and add linseed or resin oil to form a thick paste; melt with gentle heat, and allow to cool to 212°; then add the compound to the melted glue, and thoroughly mix. Then stir in sifted whiting, and knead the whole together like bread, form it into cakes, and leave it to cool. This composition may be brought into use at any time by the application of steam or other source of heat.

Method.—Proficiency in any given handicraft can only be obtained by actual experience. Books may afford hints—and valuable ones, too—respecting the nature and character of the several processes, but mere book-knowledge will not make you a proficient workman, although it may greatly facilitate your attempts to become such.

Weaver.—We have not lost sight of the subject alluded to, and hope to have an article treating of the same in our next number.

THE LONDON CENTRAL

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This Company is established for the purpose of Leasing or Building a Painters' Trades Hall, Library, and Reading Room, for the use of Trade, Benefit, and other Societies.

PROSPECTUS.

Seeing the great evil of having our meetings at public houses, and the necessity of improving our condition, both morally and socially—conscious of the difficulties and failures that have attended all former efforts in this direction—we have taken a broader basis as the foundation of our work, and a fixed determination that no effort shall be wanting on our part to ensure its success.

To remove the existing evils of public house meetings, the London Central Painters' Society members have formed a Company, on the principle of limited liability, for the purpose of leasing or building a hall in a central part of London, such building to consist of a hall capable of holding 1,000 persons seated, library, and reading room, with large rooms for the use of various societies to hold their meetings in, with committee and refreshment rooms attached, lavatories, &c.

The calls are made easy, to enable working men to take up shares. All are invited to co-operate in the scheme; and, to prevent monopoly, no shareholder will be allowed more than ten shares.

The promoters of the Company are, on allotment, to receive the money outlaid for the promotion of the Company, and no further remuneration until 10 per cent. has been divided amongst the shareholders; any profit over and above this rate to be divided amongst the shareholders and promoters, in proportion of two-thirds to the shareholders and one-third to the promoters.

For the many benefits it will confer upon them, it behoves the working classes generally to devote their entire energy to its advancement, and take every opportunity of making it known and appreciated; as we advance in years, numbers, and intelligence, great and numerous will be the advantages which those who come after us may acquire through our earlier exertions.

The promoters, in bringing this scheme before the working classes, feel the greatest confidence that, if supported by those it is intended to benefit, it will prove one of the greatest advancements of the age, both morally, socially, and financially, and will ultimately produce a large dividend to the shareholders.

FORM OF APPLICATION FOR SHARES.

To be retained by the Bankers of the Company.

No.

To the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED.

GENTLEMEN,—I have paid to your credit at your Bankers the sum of £ , being a deposit of 2s. 6d. per share on shares in the above Company in respect of such shares, or in respect of any less number you may allot me, and I agree to pay the further sum of 2s. 6d. on allotment thereof, and the instalments according to the terms of the Prospectus.

Name in full,

Residence,

Profession or Trade,

Dated this day of 186

If it is not convenient to make the deposit with the Bankers of the Company, the form may be sent by post to the Office of the Company, accompanied by a Crossed Cheque or Post Office Order for amount of the deposit, which will be paid into the Company's Bankers, and the Receipt returned by post to the Applicant.

BANKERS' RECEIPT.

To be signed by the Bankers and returned to the Applicant.

Received this day of 186 , of for the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED, the Sum of on account of an application for an allotment of Shares in the undertaking.

£ : : [2

William Chambers, Heraldic Chaser and Embosser, 4, FOLEY STREET, PORTLAND PLACE, W.

Honourable Mention, Great Exhibition, 1851; *Honourable Mention*, 1853, *New York.*

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This course will consist of about forty lessons, commencing on WEDNESDAY, April 11, at 11 a.m.

Fee for the class, £4, including cost of materials and apparatus.

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Feb. 8, 1866.

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1856	222,379	72,781	821,093
1861	360,130	135,674	1,311,905
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Life claims are payable in thirty days after they are admitted.

Working Men's College.—BUILDING FUND.—Subscriptions are requested in order to allow the Proposed Buildings to be begun in the Spring. The College is self-supporting; but increase of numbers has made additional Rooms necessary. Estimated cost, £3,000. Already subscribed, £780, including £26 5s. from the PRINCE of WALES, and £278 from the Principal and Teachers. See fuller statements in current numbers of *Cornhill* and *Macmillan's Magazine*. Subscriptions received at the College, 45, Great Ormond Street; the London and County Bank, Oxford Street; and by the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple.

The London Provident Institution, 2 and 3, Blomfield Street, Moorfields, E.C. Established A.D. 1816. Savings Bank Certified under the Act of 1863. Open Daily. Office hours 11 to 3. Saturday, 11 to 1 and 5 to 8. Sums not exceeding £10 are paid to depositors, without previous notice, on Monday, Wednesday, and Friday. The rate of annual interest allowed to depositors is £3 per cent.

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FREE PASSAGES are granted to South Australia, in vessels chartered expressly by H.M. Emigration Commissioners, to PLOUGHMEN, farm servants, miners, masons, bricklayers, wheelwrights, blacksmiths, sawyers, carpenters, gardeners, grooms, collar and harness makers, country shoemakers, &c.

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Earl Russell communicated to the Royal College of Physicians and to Mr. Freeman that he had received information from Manilla that the only remedy of any use in Cholera was Chlorodyne.—*Lancet*, Dec. 31st, 1864. See *Times*, Nov. 14th, 1865.

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THE

WORKING MAN:

A Weekly Record of Social and Industrial Progress.

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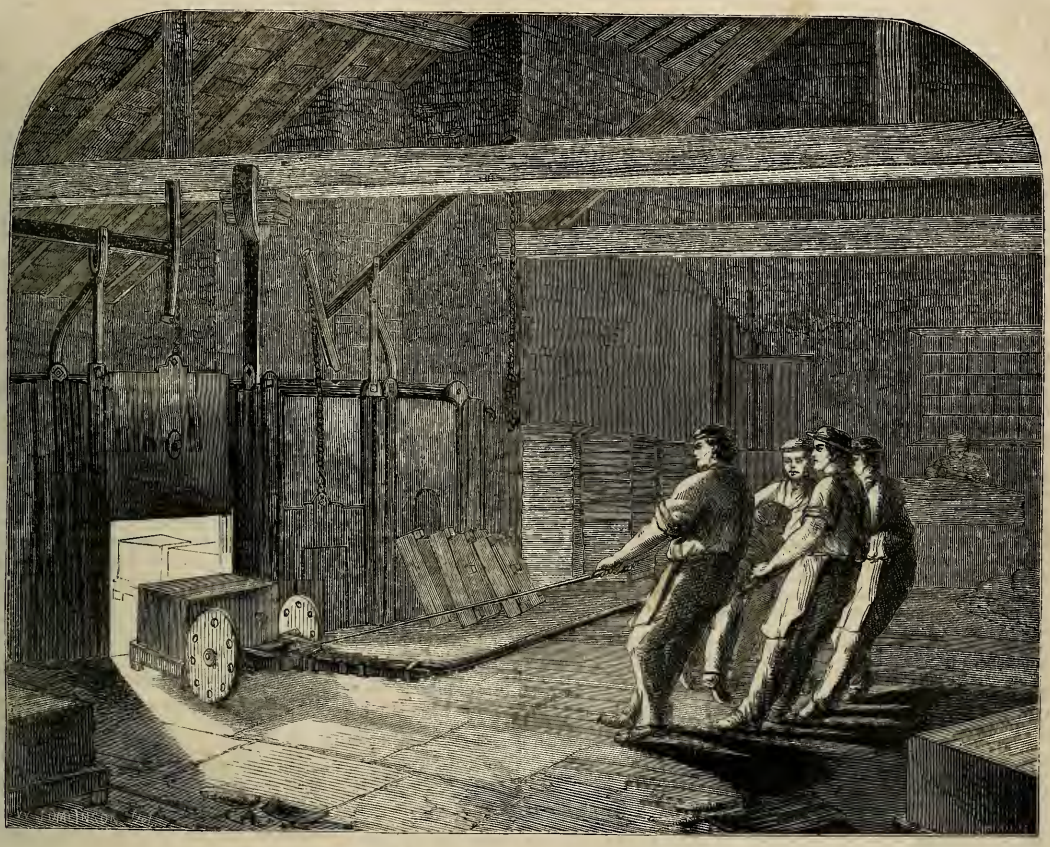


DRAWING IRON PLATES FROM THE FURNACE.

Tin-plate Works.

TIN plates are made of tinued sheet iron; but a description of the mode in which iron is converted into plates or bars would be out of place here, coming, as it does, more properly into a description of iron-works.

After the sheets of iron are rolled out, they are taken to the shear-house, to be trimmed and cut to the size required under a powerful blade, which is worked up and down by steam-power. Several plates are cut together, and, as they adhere somewhat closely, they are handed over to girls to be separated previous to being weighed, and are taken thence to the "black picklers." Here men place them in leaden troughs containing acid and water, the action of which removes the black, scaly impurities from them, and improves the surfaces. They are now taken out and washed in clean water, in an iron trough, by girls, looked over one by one, to see if the acid has properly done its work, and those upon which impure spots still linger are returned to the black picklers, who dip them afresh, and they are afterwards rewashed in water.

RUBBING TIN PLATES.

From the black-picklers they are taken to the annealing-room, and piled up in quantities upon iron pans. Strong iron pots are then turned over them, and sand poured upon the points of junction between the pots and pans, to ensure more perfect exclusion of the air. The long iron "trolley" is next brought into active requisition, for the purpose of placing the heavy iron mass in the annealing-oven; and this operation requires the services of four or five individuals. In "first annealing" they are allowed to remain in the furnace about six or seven hours, then brought out and allowed to cool till the next morning. Our first engraving shows the men

drawing a pot out of the furnace, four men pulling at the handles, &c., and a lad swinging upon the trolley, to assist somewhat in balancing the load at the other end. After being once annealed, they are taken to the "cold rolls" (a couple of polished iron cylinders), and passed through repeatedly, for the purpose of closing the pores, solidifying the metal, and putting on a polish. A second annealing process has then to be undergone, and after they have cooled, a workman wheels them away to the "white picklers." There they have a little sand and sawdust placed between them, to facilitate the next operation, which is that of dipping them in a very weak solution of acid and water made hot. This still further cleanses them, and a girl, standing at a trough containing water, well scours the surfaces with a ball of hemp, which she continually dips into a little pan of sand. They are again washed in pure water, and taken thence to the tin-house to be dipped. (See illustration, page 228.)

A man called the "tinman" stands before a kind of square furnace, divided into two compartments, one containing grease made very hot, and the other melted metal—that is, a mixture of tin and lead. The plates are first plunged, one by one, into the hot grease (without which the tin will not properly adhere to the iron sheets); then taken out and plunged into the metal bath. The tinman passes them to the "wash-man," who stands by his side, and has also a divided furnace before him, each compartment containing liquid metal, upon the top of which floats grease to the thickness of two or three inches. This metal is somewhat purer than that in the tinman's bath, and into it, through the floating grease, each plate is dipped in succession. When withdrawn, they are placed in a little rack, suspended in a third bath, containing pure tin, when they receive the final coating, are afterwards drawn out, and the superfluous metal allowed to drain from them as they hang in the rack.

When the surface is sufficiently dry and hard, the plates are handed over to girls to receive a final polishing, which is performed by placing them one by one in a box, or trough, filled with "sharps" (a kind of meal sold by corn-chandlers), and well rubbing them all over with a handful of hemp. (See second engraving.) They are afterwards dusted with a piece of sheepskin, with the wool on, and taken to the sorting-room, where a number of men, standing in a strong window-light, separate the different qualities. Next they are counted out, weighed, and packed in flat wooden boxes, each containing about one hundredweight.

Our sketches are taken from the works of Messrs. Budd & Co., Tividale, near Dudley.

Mr. Gladstone and the London Working Man.—At the Liverpool Reform Meeting, Mr. Gladstone, contrasting the present condition of the working man with that existing in 1830, said:—"I won't go back to those unhappy and deplorable collisions between the authorities and assemblages of the people which now raise a blush on the cheek of Englishmen; but I will speak of other things, and of one that is familiar. At that time there was a fund of popularity attaching to parodies of very well-known and very sacred and solemn documents of our religion. Their well-understood forms of expression were twisted, in order to meet popular favour, into a sense adapted to express the wants and sufferings of the people. I happened, when not long ago in a humble street in London, to hear a couple of men singing a parody of that kind. It was a parody of the Church Service in the Prayer Book, and the expressions were altered so as to refer to the great supposed misery and misgovernment of the people. This was within the last few months; and I had the curiosity to wait near these persons for a considerable time, in order to see what took place. They were successful in gathering round them a group which appeared to vary from between six and twelve, boys and girls; and those boys and girls, I am bound to say—thereby testifying to the improved condition of the working class—did produce various pennies and halfpennies, with which they purchased copies of these wonderful productions. But my curiosity was to see what testimonies of popular interest they would receive from the adult working men. It was about six o'clock in the evening, when they were going home from their work, and passing by to and fro. I saw but one person of an age to receive wages as a working man stop near this group, and, having listened for about half a minute, he went on, with evident indications of contempt."

The iron armour-plates destined for ships now building are tested severely under the new regulations of the Admiralty. They are peppered at by 95 cwt. 8-inch smooth-bores with spherical shot, and 13 lb. (not 16 lb., as formerly) charges, at a distance of only 30 feet.

Our Cricket Club.

The cricket season opened on Good Friday; and, although it is too cold and damp at present, and the evenings are too short, to admit of practice, we have enough to do in arranging our plans for the coming summer; and when the days draw out, we shall be quite prepared to astonish the natives at Victoria Park or Battersea by our Saturday afternoon performances. For on Saturdays we knock off early; and off we start to enjoy three or four hours' cricket.

Our club is not a very large one, but we contrive to muster an eleven who are supposed to be able to play any other shop eleven likely to be brought against it. Of course we often get a severe beating, and ducks' eggs figure sometimes in our score with unpleasant frequency. But that is not our fault. The best players make a bad score sometimes; and in such cases with us the ground is out of order; or we have got hold of the wrong bat; or the umpire would insist our legs were before the wicket, when they were not; or the bowler stepped in at least a yard, though the other umpire declared he did not; or the man at the opposite wicket would not move when he might have got the run as easily as anything, and left us in the lurch beyond the crease, while the wicket-keeper tipped the bales off. But sometimes we make long scores and win; and then don't we talk about it for a week after! That drive for three was a drive, if you like; and the style in which Charley Biggles threw up from long field off, and took the wicket, before that chap with the black whiskers could reach his ground by a yard, was worthy of Ben Griffiths or Alf Clarke. You see we know all about the professionals; and if we did not call them by their shortened Christian names, perhaps people would think we did not know them, which we should feel as an imputation upon the club generally.

We pay a small weekly subscription during the season, and we have a secretary, who writes to other secretaries, and makes matches, and sometimes breaks them off in just indignation, when we hear that the rival club is trying to sneak in a professional bowler as one of their eleven. When the season is about to begin we have a meeting, to draw up rules—not rules for playing, for, of course, we adopt the Marylebone Club rules; pretty cricketers we should be if we did not—but rules for the management of the club. We generally require three meetings to discuss them and to arrange our proceedings. The secretary, who is a great cricketer and authority, has doubts about the condition of the ball, which, though it has been in grease all the winter, does not seem to be quite so right as might have been expected. We feel that we shall scarcely be able to do justice to ourselves with that ball, and a new one is voted, which starts a fresh difficulty as to where it is to be bought, which is a matter of great importance, and much discussed by several of our most experienced members, sometimes, I regret to say, in vigorous and even acrimonious terms. Then the bats come before the meeting. There are grave doubts about one, which is accordingly taken in hand by several of the crack batsmen, who hold it as if blocking, and tap the floor with it three times, then give the cut, and the drive, and the leg hit, with the appropriate attitudes, which very much impress the younger members. At the end of the season we balance the accounts, and sometimes find that we are slightly indebted to the treasurer, which fact, when announced, causes a great deal of dissatisfaction, and the withdrawal of three-fourths of our members, who, however, always join again when next summer comes. But the fact that the secretary and the treasurer charge half-a-crown each for refreshments when going a few miles out to arrange about a match, is never quite forgotten, and, in short, to put it mildly, is very much talked about in the shop.

In the club, of course, we have various kinds of players—tolerably good, indifferent, and very bad. Some are such tremendous cricketers that they can think or talk of nothing else during the season. When passing each other in the shop, one will bowl an imaginary round arm and call out, "Play," and the other stoop down, with the knees bent in, one leg stretched out, and his elbows on his knees, just as Tom Lockyer does behind the wicket, and says, "How's that, umpire?" which is very effective indeed. If one of them wants any tool or small article which the other has, he calls out, "Thank you," which is the cricketer's way of asking for anything, although people who are not cricketers only use the words when they have got what they want. Charley Biggles, already mentioned, talks cricket tremendously, and is a cricketer every inch of him. He actually possesses a pair of flannel trousers and spiked shoes, and some of our jokers declare that he carries a cricket-bat, rolled up in a pair of leggings, under his arm when he comes to work, hiding them till he leaves in the evening, when he carries them back again. Certain it is that he finds it necessary to wear a cap made of pieces of red and white flannel very often when he is at work, and that he has been seen with the pads and spiked shoes on when only looking on at a match. When he is on the ground, waiting to go in, he can never sit still in the tent like the rest of us, but he and one or two of the others always get hold of a spare ball, and bowl at each other and catch, or sit astride on bats, in a manner wonderful to behold.

We have a few old members—men who played at cricket when Charley was a baby, and who have seen Lillywhite (not any of the young ones of the name), and Felix, and old Clarke, and who always play in their shirt-sleeves and with their hats on, and bowl slows with a twist, taking their time about it, and rolling the ball slowly along, and—when it is sent flying over the head of slip, and long field goes running after it with all his might, and the bats are getting runs like anything, and everybody else is calling out, "Now, then, throw it up," "Run again," "Three for that," and so on—say, "These young fellows don't know how to play slow bowling"—though the young fellows have their private opinion on the subject.

Our cricket club is a capital club, there can be no mistake about that; and first-rate amusement and exercise the game is. We expect to do great things this season; and perhaps I may report, at any rate, one or two of our best matches.

---

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

HOW TO DEAL WITH THE YOUTHS.

Before continuing the consideration of particular Clubs, it may be desirable to look closely into one of the chief causes of failure in them. I propose, therefore, now to indicate what experience suggests as the best means of dealing with youths in relation to the clubs which they have so uniformly wooed, and too often won, with a passionate and fatal ardour worthy of the most dismal and romantic scenes in a modern sensation novel.

The *first* and most obvious course is to establish a Youths' Institute, on the model of those capital ones at Islington and Bayswater. The plan was initiated and successfully carried out originally by the Rev. Henry White, M.A., at Dover, and has since been admirably worked by Mr. Baker at Bayswater, and Mr. Tabrum, at Islington, with the help of a few other devoted friends. It is to be hoped that a full account of these institutes will appear before long in the Working Man.

But, *secondly*, when the requisite funds and premises cannot be obtained, and youths under the age of twenty-five are anxious to join a Working Men's Club and Institute, they may be safely admitted to the use of the reading-room and library; also to classes, if separate rooms and teachers can be procured, and to lectures, concerts, and other entertainments, if there is a large room or hall belonging to the club, or one hired for the purpose, and large enough to accommodate both them and the grown-up members and their wives.

Thirdly, youths may be admitted without mischief, in many cases, to a recreation-room besides the above-mentioned room, provided it be kept quite distinct from the one used by the men. It is, however, very doubtful whether—at all events, in large towns—it is desirable to have a bagatelle-board in it; for experience shows that in several instances youths have learned to play at bagatelle in the club, have acquired a passion for the same, and have afterwards become systematic players

* Continued from page 215.

for money at a public-house. Even where that has not happened, it must be confessed that there is generally a great deal of noise connected with the game, and disorderly youths are attracted by it, so that the older members are annoyed and repelled; while, even though no betting or stakes are allowed by the rules, it sometimes happens that lads and youths play for beer, bet, and then adjourn to the public-house after the game to settle their accounts. Of course, no good is without some attendant evil, and the abuse of a good thing is no argument against its use. But it is by no means clear that bagatelle-playing is so decided a benefit for youths as to counterbalance its dangers. Unquestionably it is of the greatest importance, as was well urged by two highly-intelligent and respectable working men at the last London Secretaries' Tea-meeting, that these clubs should not fall into the error of the old Mechanics' Institutes, and frown upon recreation. Amusements must form *an essential part* of their programme. But it is very different providing bagatelle-tables for grown men, whose characters are comparatively formed, and who would only use them, in general, as gentlemen use their billiard-tables, for an occasional relaxation, and letting youths give themselves up to the game, night after night, perhaps meanwhile acquiring a taste for betting and gambling. If these younkers would consent to vary their bagatelle-playing with attendance at classes and lectures, and if a vigilant yet amiable member of the committee, or other official, could guard against betting and rioting among them, the game might be simply a useful and pleasant diversion for them, just as in the drawing-room of a gentleman's home.

But, *fourthly*, in all cases I would recommend the adoption of a plan in practice at some clubs, viz., of admitting youths, if at all, *only as associates*, not as full members, until they have reached a specified age, which I should strongly advise to be fixed at twenty-five years. They would thus obtain no power to interfere with the management of the club, nor exercise the right of voting, until their age (and, perhaps, previous satisfactory connection with the club as associates) gave some guarantee that they would exercise the privileges of full membership judiciously. In all such cases it would be well to require—as is now done in some clubs, when youths under twenty-one apply for admission—that they should bring a recommendation from two or three of the older members.

No doubt there are strong reasons for leaving the managing committee some power to admit, in one way or another, youths under twenty-five, or even younger. A father may wish to join a club chiefly for the sake of encouraging his sons to attend it, and his presence there, or their own characters, testified to by himself and some other members of the club, may be a sufficient guarantee that they will conduct themselves quietly, and not annoy the older members.* And when youths can be brought into a club without annoying older men, and without learning bad practices there, it is not only a great gain to themselves, but ultimately to the club, of which they will probably, in time, become staunch and valuable members. Of the value to themselves an amusing little illustration occurred some time since. A youth, whom it was necessary in a certain Working Men's Club to suspend, for misconduct in annoying other members, when refused his ticket, said, "Well, I *am* sorry." "What call have you to be sorry for?" said a companion. "There's nothing to be sorry for." "Yes, but there is," replied the other. "Since I belonged to the club I've bought a new shirt, a new pair of stockings, and a new pair of boots!" Poor fellow! We hope he learned something by his punishment more valuable than all he had gained by belonging to the club. A friend writes:—

"Speaking to some young men whom I met one evening at the club, I asked them what they thought of it. In a moment, without thinking on the matter, they exclaimed, 'Mr. ——, it is a *home* for us!' One of them told me he used to spend his every evening at the public house, but now he spent his evenings at the club."

Lastly. On the principle of dealing with facts as we find them, I must not ignore the hapless condition of many existing clubs, which, before they knew the deadly nature of the mistake, admitted these youthful, innocent-looking allies into the heart of the citadel. (One is sorely tempted here, by way of a lively illustration, to trot out that Trojan horse, once more, which did Mr. Gladstone such good service in his eloquent peroration when introducing the Reform Bill, but the line must be drawn somewhere, and I forbear.) Now, the managers of these youth-oppressed clubs, round which treacherous and deceitful juveniles are clinging, like drowning victims to their would-be preservers, may fairly turn to me and say, "This is all very fine, if we had only known it a year or two ago, and had then adopted the precautions you suggest; but now two-thirds or three-fourths of our members are under twenty-five. They have driven away all the older men, except those who are content with the quiet reading-room, and lectures, or entertainments. We cannot afford to send them packing, or we could not pay our rent, and should not have thirty members left." Now, in answer I might say that, if they cannot have those separate chat and game rooms above proposed; and that, if the club was really established for men, and not for youths, the sooner they left off perverting it from its legitimate purpose the better; that, moreover, as soon as it became known in the neighbourhood that the youths had really been bowed out, the men would gradually return. But there is a middle course which may be suggested, and which, in many cases, might be a far better one than making a clean sweep of more than two-thirds of the members of a club. It is this: On the door of one comfortable room have the words painted, "For members above twenty-five years only." This is done in the *Heywood* Club with good effect. It secures one room, in which grown men can always be secure from the presence of lads, where they can at all events have their chat and their pipe in peace, and talk without constraint. This, after all, is the thing of most importance; and if they want to use the bagatelle-board, they must form their own party and take their turn. At *Clerkenwell* Club they have the great advantage of having a separate entrance and staircase for the youths, as well as separate rooms; so that, in fact, it is like having a Youths' Institute in connection with a Working Men's Club. Nothing better than an arrangement of this sort could be desired, if it be strictly carried out.

I shall be very glad of any practical suggestions or comments on the above remarks that managers and members of clubs may have it in their power to offer.

* Of course, some young men under twenty-five, or even under twenty-one, may be much steadier and pleasanter company for grown-up men than those of older growth. But, equally of course, these cases are exceptional, and we cannot legislate for exceptions.

A Bit of Work-a-day Biography.

Now, do you know, I never like to hear a word said agin them schools, though they aint the sort of places for a respectable mechanic to send his youngsters to. If a fellow don't give too much towards educatin' the publican's daughter at boardin'-school, he can afford to pay for what his own children get in the shape of learning, which isn't much generally. But a ragged-school once did me a good turn, and I shan't easily forget it.

No, it wasn't in that way, tho', I dare say, I may have done, now and again, many an odd job for 'em. I suppose, now, when you came to the business, you was bound to a reg'lar master, paid your footing, worked in a good shop, and learnt the trade in the usual manner. It wasn't so with me, I can tell you.

Well, I don't mind—that is, *to you*; but I shouldn't care to tell it to everybody, although, for that matter, there's no disgrace in my part of the story.

I wasn't above eleven years old when I was brought up to London by my mother. All I knew of my father was that he died years before. I can't bear even now, though it's one-and-twenty years ago, to think of the trials and miseries of our first week in London. We had left a clean little village just eight days—why, I never rightly knew; but there was some dreadful reason, for my poor mother made me promise, as she lay on her dying bed in St. Bartholomew's Hospital, that I'd never go back, which I never will. I don't think we had a sixpence when we reached London, and I know we hadn't a friend in the world. It was on the fourteenth of November, and we had been tramping it up since the sixth. We passed the first two nights in the workhouse, and the others—well, never mind, we spent them in a worse place, where my mother caught a fever. A few days after she was carried to the hospital, and on the Sunday following, without a copper in my pocket, and with a heavier heart than I ever hope to have again, I left the big building in Smithfield a destitute orphan. I hope few have ever felt as I did then. I hadn't had a morsel to eat that day, for I started from a low lodging-house in Clerkenwell early in the morning to go to the hospital, and waited outside in the cold for two hours, being shy, you know, and not liking to go in. When they had told me my poor mother was dead, which they did kindly like, they offered me some food; but I felt as if it would choke me, and I refused it.

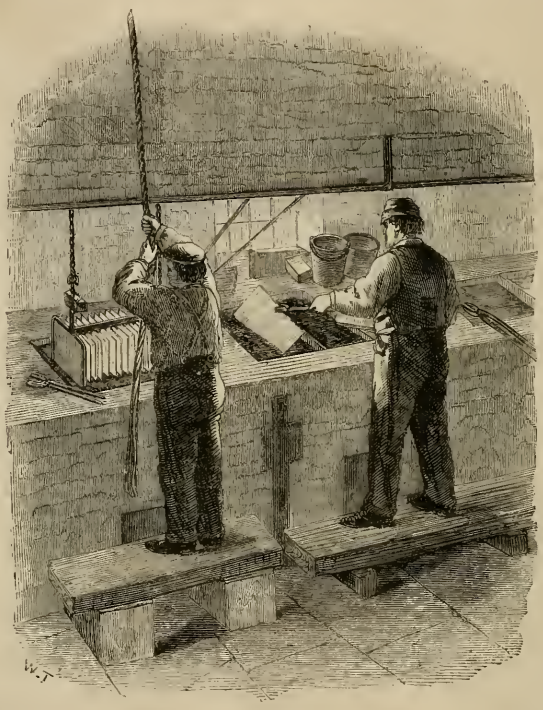
Well, as I was saying, I got among the sheep-pens in Smithfield, and sat down on a sort of post, near to some young chaps as was talking and smoking. You can't think what a sensation it is to feel alone, and to have no place to go to. I knew it was no use to go back to my lodging, as they told me in the morning they didn't want to see me any more, unless I could pay for my bed, which was twopence a night, and I already owed 'em sixpence. So I sat thinking and crying, not knowing what to do. Presently the lads behind me began to toss for halfpence, two or three of the younger ones standing some distance off to watch for the police. As soon as he came in sight one of 'em would whistle, and the game was stopped till he passed. It happened that one of the coppers rolled along up to my feet, and one of the biggest of the lads followed it, and, seeing me crying, asked me what I was blubberin' at. "I'm hungry," says I. "Well," says he, "you watch at that corner for the bobby, and I'll give you a brown." Off I scampered, as you may suppose, and fairly earned what he promised. When their game was over, of course I wanted to be paid; but they didn't seem inclined to dub up, for the fellow that engaged me had lost, and the others only laughed when I tried to explain the bargain. One of 'em, however, a bit kinder-looking than the rest, as I thought, proposed that the winner should pay me, which he did, and then my friend, for I can tell you I at once looked upon him as such, asked me where I lived. "Aint got no home," said I. Then he turns round, and whispers to one of the others, a tall, lean, bony-looking chap, with a hairy cap, who they called captain, and who I noticed broke one of the commandments every time he spoke. Well, to make a long story short, the captain took me home, which was in one of the streets long since pulled down, up again where the underground railway now is.

For four days I lived with the captain and his friends; there were three of 'em, besides two women. It was a four-roomed house, and I slept in the front parlour on the floor, along with another lad several years older than myself. On the Thursday evening the captain told me he should want me to do a job early in the morning. I was glad to hear that, for I had done nothing for my board and lodging, such as it was, but run a few errands. I asked my bedfellow what kind of work I was going to do, but he only said, "All right, you'll see." Somehow or other I couldn't get to sleep that night, what with thinking of my mother lying dead at the hospital, and wondering what was to become of me. I must a' tossed about a bit, I know, for Jack—that was the name of the lad I slept with—swore awful oaths at me, and threatened to turn me out if I didn't let him rest. I heerd the church clocks strike hour after hour; the ticking of an old Dutch clock in the corner, and the dripping of the rain off the leads just outside, didn't soothe me a mite, though some folks say they're first-rate things to make you drop off. It must ha' been about half-past three when the captain got out o' bed, for he slept overhead, and I heerd him walk across the room. I put my head out from under the clothes—there weren't many on 'em—and waited for him to knock on the floor, for he always did that when it was time for us to get up. But presently he come back and got into bed agin, as I knew by the creaking o' the bedstead, so I thought he had looked at the time and found it too early. "Worse luck!" said I to myself, for I was tired o' lying still, and wanted a sort of excuse for turning about a bit. It wasn't long afore I heerd somebody coming slowly up the street. I knew the tread of the policeman;

he had been up and down a dozen times, and there was no mistaking his heavy boots and reg'lar step. Presently he—that is the stranger, not the policeman—comes close up agin the shutters and stops, and then up comes somebody else, and they say something in a whisper, which I couldn't catch. I had two minds to jump up and cry "Thieves!" but I was too frightened for that, as I heerd them trying the shutters, as I thought. "Jack, Jack!" said I, giving him a dig in the ribs, "there's somebody trying to get in." Jack sat up in a minute; he was a very light sleeper, as I knew to my cost. He stood up and put his ear against the shutters, which he could do without getting off the rugs which formed our bed, and listened for two or three minutes; then, feeling for his clothes, he told me to get on my togs as quick and quietly as I could. Before I had time to get into 'em, he crept out of the room and up-stairs, and was calling to the captain in a whisper, but loud enough for me to hear him. Just as I heerd the captain's bed creak, three loud raps at the street-door made me jump agin, and, afore I could recover from the shock, Jack had me by the arm, and threatened something terrible if I made any noise. Then the window up-stairs was thrown up, and Mrs. Captain asked who was there. "Jim's wanted," said one on 'em outside. "Aint been home," said she. "Will you let us in, or shall we come in without?" With that down went the window. Then came a scuffling about, and a confused noise at the door, and in walked two policemen, with glarin' bulls'-eyes. Whether they had been let in, or had come in without, as they called it, I don't know; but I do know that they went right up-stairs to the captain's room, and came down again with the captain handcuffed. When they went out Jack and I followed, and I was surprised to see one of the captain's friends, who I knew slept in the first floor back, coming up the street between two more policemen. He had got out at the back, don't you see, bin taken, and was brought round.

When we got to the station-house, Jack tried to force his way in along with the rest; but the chap at the wicket turned him back, telling him as he'd come quite soon enough by-and-by. I could see he was put out, in more ways than one, for he shoved me off the steps angry-like—told me to go to a place as I shouldn't like to find, and ran away, leaving me once more alone in the streets. I shuffled along a short distance in the rain, and then sat down in a doorway, my wet rags sticking to me all over.

(To be concluded.)



DIPPING TIN PLATES. (*See page* 226.)

The Art of Writing Prize Essays.

As many pens are, doubtless, already busy upon one or other of the prize essays proposed for competition in Nos. 10 and 11 of this journal, it may be useful to many if one who had the satisfaction of winning several prizes in former days should detail some of the experience gained in this exercise. In his day there was no one who gave suggestions to new writers. Almost every workman wrote in the dark. Many subsequent years of experience among working men made plain the difficulties under which those new to this sort of effort labour. It may, therefore, be useful to point these difficulties out, and explain how they are to be, or may be, overcome. Many workmen have brains enough, ideas enough, and experience enough, to write a good prize essay, but they do not know how to set about the thing. They never did it—they, perhaps, do not know any one who has done it—and they do not know how the thing can be done. Therefore, it is our intention to see whether a little light can be thrown upon the matter.

Many working men have excellent ideas, and know very well what they mean, but find a difficulty in expressing their meaning. In talking to a friend, they can say plainly what they mean; but when they begin to write they find the greatest difficulty in doing it. They can tell their story to a companion, or talk their ideas over to their wives, and make themselves clearly and perfectly understood.

Now, there is no other secret in good writing than that of talking with the pen. And everybody who wants to write so as to be understood, should aim at doing this. In conversation the humblest men are commonly direct, pointed, and even graphic; and they would be so when they write if they had the courage to write as they can talk. A public speaker is never so plain, emphatic, explanatory, and successful, as when he selects some imaginary ignorant man in a remote part of the audience, and addresses himself to him, forgetting everybody else, and thinking only of explaining his case to that particular individual. Molière, the famous French writer of comedies, used, it is said, to read over all his plays to his housekeeper; and he wrote with her constantly in his mind, with a view to make himself intelligible to her. And if she could not see his point, he altered his point till she could see it. Now, why should not a workman, writing a prize essay, make his wife his critic; talk the matter over with her, and write the matter out until she is satisfied with it? He may be sure, if she understands it, all the judges will; and, in all matters of taste, there cannot be for any man a better guide than the judgment of his wife. It does not matter whether she has learning or not; a woman is instinctively sensitive on all matters of taste of expression. What she does not like is sure to be wrong.

Another difficulty which working men experience in composing an essay is, that they are afraid to express themselves in their own way; and this, indeed, is a difficulty which a great many writers besides working men experience. Most persons, unless very much practised and very much master of themselves, are always trying to express what they think somebody else thinks, instead of what they think themselves. They are wondering what the judges will think, instead of thinking about their own subject. The rule to take is, never to think nor care what anybody may expect to be said upon the subject, but simply to say what ought to be said upon it. What is wanted in a prize essay is the actual ideas, actual experience, actual knowledge, and suggestions of the writer. He must get out his own mind on to his paper. We have somewhere seen a remark by the Countess Ossoli, to the effect that the mere backwoodsmen of America are not only interesting but original, when they talk strong pieces out of their rough lives. When they tell something of their own experience—some thought which occurs to them—some adventure they have had, the result is striking and impressive, and makes the best thing a traveller can put into his book. Every working man who tells his own story in a natural, unpretending way, can always write something interesting. It does not matter how rugged, and even abrupt, the style is, its ruggedness and abruptness has freshness, and freshness is a charm. The thing for him to do, is to get out his ideas somehow, and in the fewest words which will tell his story.

In most cases the working-man writer is afraid he doesn't know enough of grammar. All the grammar required is a very simple affair, and a little understanding will make a man master of it. The chief thing is to make simple sentences. A sentence begins with a capital letter, and ends with a full stop. Every new sentence should have a capital letter, and a full stop at the end of it. A sentence is a distinct piece of meaning. Every piece of meaning has three things in it—a subject, the action of the subject, and the object acted upon. "Charles carves the wood" is an example. "Charles" is the subject, "carving" is the action, and the "wood" is the object of the action. Sentences are, of course, often longer, and fuller of words, but they all have substantially this structure and these parts, and if the writer takes care to keep these parts clear in his mind he will never go far wrong. The only other point is to take care of what are termed the pronouns, or "for-names," as they are sometimes called.

Instead of saying, Charles carves the wood, we may say, He carves his wood. "He" and "his" stand for "Charles" and the "wood." But if one said carelessly, "He carves her wood," this would be bringing another person forward, because "her" stands for a woman. Every Englishman knows this. There is much more in grammar than these two things; but a little carefulness in managing them will keep any Englishman generally right and clear. All the rest will come near enough from habit. A workman is not expected to be a scholar, but to know what he means, and to say it as simply as he can.

The great confusion men fall into is not from want of grammar so much as from want of patience and care. Young writers always try to say too much in a single sentence. Indeed, they generally try to say everything at once. They do not break up their meaning into pieces, and tell one thing at a time. Napoleon used to say to his secretaries, "Be clear—that is sufficient." This single axiom, deeply impressed on the mind and acted upon in composition, will do more for a new writer than all the rules of grammar without it. Clearness conquers. He who sees, and knows what he sees, and can make another see it, will succeed—and working men can be simple and clear as well as gentlemen, if they once give the thing a thought.

Stone-drays in Paris.—A great improvement has taken place in the carriages employed to convey the immense blocks of cut stone used in the new buildings in Paris. For the clumsy two-wheeled dray is substituted a carriage on four wheels made of wrought iron. The substitution of the new vehicles is a great mercy to the unfortunate horses who were placed in the shafts of the old drays, and who, while supporting almost all the weight, were fearfully shaken at the least roughness in the road. It is further proposed to move those stone-drays by steam, in the same way as the machines which are used in crushing the stones in the streets of Paris.

*Building Societies.**

A subscription of 2s. per week for £200 appropriations will take a society about fourteen years to provide all its members with advances. A subscription of 1s. per week, with appropriations the same, will take half as long again, or about twenty-one years. By raising the subscriptions to 4s. per week, and allowing the appropriations to keep £200, we shall get all the advances provided for in about ten years. The number of members in a society does not materially alter the period, supposing that they all commence at the same time. After all the advances are made, it will take five or six years more to receive the outstanding repayments, and to pay back to the members their subscriptions, before the society can be terminated. Thus the 2s. per week society will last altogether about twenty years.

The repayments are generally at the rate of 10 per cent. per annum, or £20 yearly, for £200, *besides the subscriptions.* A working man should be quite sure, before he resolves to use his right to an advance, that he will be able to bear the increased outlay, for he cannot expect to realise more than 8 per cent. per annum, or £16 yearly, from £200 worth of good leasehold property. He will therefore be required to pay £4 per annum more into the society out of his own pocket than he did previous to receiving the advance. Many members of building societies have not taken this into consideration; have got into arrears; been heavily fined; and, at last, had to forfeit house or houses after all. Societies are now established, however, which allow the subscriptions to cease so soon as the repayments commence, and some only require the repayments to be at the rate of 8 per cent. per annum. These are real privileges to the working man, although they are attended with the drawback of lengthening the society some four years. But, as withdrawal is allowed after three years without loss, and as borrowers who have redeemed their properties can retire altogether from the society without fee or deduction, the length of the society is really not of much consequence. Large profits are made by half the appropriations being sold. As much as 40 and 50 per cent. has been the price given for the right to the money. But, as the premium is not deducted from the advance, but payable quarterly during ten or more years, the highest premium is only about 6 per cent. per annum for the sum advanced. This arrangement, while it allows easy withdrawal safely, and offers to investers a tolerable bonus, gives members the opportunity of securing a property, if an eligible one should offer, at a time when they are without any right to an appropriation by ballot, and unable, it might be, to purchase one of any member. The several provisions last mentioned seem to unite to a considerable extent the advantages of both the permanent and terminating systems. We notice a novel arrangement but lately introduced for awarding a larger amount free of interest to the shareholders who are not fortunate enough to get the early rights to advances. By this plan the amount advanced will increase £5 every year. For instance, a member who gets an appropriation the first year will have £200 advanced to him, free of interest; the second year the sum will be £205; and so on, increasing £5 every year, up to the tenth year, when those who may have had to wait that time, and who will then have paid £60 in subscriptions, will have the right to receive £250, free of interest. This seems to remedy a defect hitherto experienced in these societies, and to make them more *mutual.* It has been felt that the members obtaining the early appropriations have so much more profit out of the society than those who may have to wait several years for theirs. The plan here referred to will encourage waiting members, by offering to them a sum which will be the larger the longer they wait for it. The expense of the mortgage is paid by some societies, and repaid by the member by quarterly instalments. But in the purchase of property, the cost of the conveyance is often much more than the cost of the mortgage. And when bargaining for the purchase of a house, the gross amount of the legal expenses should be ascertained. If the property is to be bought through a Building Society, no deposit should be paid, nor agreement signed, until the society's solicitor is satisfied with the title and the directors with the value. We make these remarks because we have met with so many cases where a member of a Building Society has paid a deposit and signed an agreement on account of property which could not be accepted by the society, either on account of its being insufficient, or unsatisfactory security. It is usual to get novices in these matters to sign an agreement, which precludes them from inquiring into the title at all, except at their own expense; and as there are numbers of titles to property in London which would cost £40 or more for a solicitor to go through, we need say no more of the importance to a working man of making every inquiry before he parts with his money, or commits his hand to paper. There is danger of making a bad bargain in house property, under the most favourable circumstances; but if a man wants a house to live in himself, he will avoid a great deal of the trouble and risk which an invester has to put up with. And provided he examines the rules of a Building Society well before he joins, and learns something about the officers of it, selecting a society whose terms suit him, and whose managers have had some experience in Building Society matters, and who, moreover, are known for their honesty and impartiality; and provided, also, that when about purchasing a house he exercises a similar caution, there will be the prospect before him of being, at least, his own landlord for the remainder of his life, and possibly the landlord of other people as well.

The writer can speak well of Building Societies from experiencing the benefits thereof. He began life as a real working man, and through industry in his business, and with the assistance of Building Societies, he now possesses property of the value of some thousands of pounds. He can only say, in conclusion, that he believes a careful perusal of the above remarks (which are the result of many years' experience of the working of these societies), will help his fellow working men to go and do likewise.

* Concluded from page 212.

Imported Knowledge.

We both export and import manufactured articles, and raw material too; but among official imports, "knowledge" is not a recognised article. We never see it set down in any Parliamentary return. The Board of Trade has not the item in any of its "Returns;" it nevertheless exists, as we lately said, and the Government officially import it. We will give examples—or, speaking commercially, we ought to say, "samples" of it.

Lord Howard de Walden, writing to Earl Russell from Brussels, in the month of August last, informs the Premier that the Belgians claim to have been the first to discover the uses of coal; and this discovery, they say, was made by one Hullos, a blacksmith, of the village of Plenevaux, near Liege, in the year 1049, from whose name they derive the word *houille,* which, as we know, is the French name of coal, and *houillère* their name for coal-pit. Lord de Walden suggests that the word *houille* is generally considered of Saxon origin, which would show that coal had an earlier than Belgian origin; and he suggests that Theophrastus proves that coal and its uses were known to the Greeks, some generations before the Christian era. It is supposed that coal was known and used in Belgium earlier than the date above given. There is, however, further curious information communicated by Lord Howard de Walden.

The earliest mention made of the existence of the rights of property over Belgian coal-pits occurs in 1297, in connection with an Act of John, Count of Namur, which granted to the Sieur de Borgelles the right to work for coal in Charleroi. In a record of the year 1443, it is stated that any person had the right to dig for coal, even on land not his own, by obtaining permission from the mayor, as representing the seigneur, to work a seam which he had discovered, on the condition that he should pay to the seigneur one-fourth, and to the proprietor of the land one-third, of the annual produce of the pit; from which we learn that the right to work for coals or other metals in Belgium in feudal times was a seigneurial right, invested in the lord of the manor, not in the proprietor of the land. The history of the variations growing up in the usages and rights of different districts in the progress of centuries, is given by Lord de Walden, in a manner that must be very interesting, as regards the facts communicated, to the coal-owners and the coal trade generally of this country.

It cannot be uninteresting, however, to artisans to learn that in Hainault and Namur the right to work coal-seams was granted at the same time to three or four companies, who have been found working for coal within the same vertical limits. The inconvenience, confusion, and expensiveness of this cramped system of mining will strike every one here. It would be deemed impractical in this country, and, we believe, has never been attempted. Liege itself is free from it, and the plan is generally disappearing from Belgium.

It is curious, however, to find in Lord de Walden's report evidence of the existence of Co-operation in Belgium, certainly as early as four centuries ago. Such appears to be the facts, as stated by his lordship. As far back as 1297 and 1443, records, as we have stated, existed as to grants of rights of coal-mining; and his lordship states that "the first companies for working coal consisted of *mere associations of operatives.*" Some of these companies—for instance, those of "Belle et Bonne," "Turlupu," "Fosse du Bois," and others—still keep up their *original character,* and contain a large number of workmen who *have shares in the undertaking,* and who *consequently take part in the deliberations of the society.*" Here are all the features of practical Co-operation. This system was gradually changed at a period when Co-operative ideas were popularly supposed to have been first introduced into Europe—namely, after the Revolution of 1789. Only a short time ago it was a matter of public congratulation that Co-operation was about to be applied in this country to coal-mining. For a long time it was thought, and even still the opinion prevails, that it is a difficult or impossible thing to apply Co-operation to coal-mining. Coal-owners have doubted it, the public have questioned it, and even the trade unionists have shaken their heads at it. Only a few bold and intelligent colliers were found to have faith in it; and the Messrs. Briggs were much complimented for their intrepidity in making their experiment. Now we find that this is the natural condition under which the oldest existing industry was originally carried on. Had Lord de Walden's report been made a few years earlier—had the Foreign Office fortunately imported this knowledge a few years ago—instead of having only the Co-operative Collieries of Whitwood and Methley in existence, there would probably now be a dozen or more.

Very curious information, of which the unionist operatives in the coal-trade ought to be in possession, is communicated in the Foreign Office report in question. In 1851 there were 380 pits in the provinces of Liege and Hainault, and these 380 mines were worked with 41 open galleries for the extraction of coal. In 1862 the number of pits had decreased to 335, but the open-air galleries had increased to 56. In 1851 there existed 214 open galleries for the escape of water; eleven years later—that is, in 1862, these had increased to 335. The use of ladders, always unpopular with the miners, is made obligatory in many mines, from the frequent accidents arising from the use of cages, or "cuffats." Of late years, an apparatus, called the "warognière" (man-engine), for the ascent and descent of the pitmen, had come into general use in all the best-managed mines. There appears to be no invention such as that lately perfected by Mr. Broadbent, of Rochdale, in this country, for arresting the descent of cages by an ingenious and simple self-action on the breaking of the pit-rope or chain.

We find that police regulations are necessary to ensure the safety-lamps being locked before being delivered to the men. Belgium miners, like the English, are subject to what Lord de Walden very properly called "foolhardiness." In order to get a better light to work by, they would take the tops off the lamps, and blow up the mines and themselves too.

Another fact affecting the lives of workmen and the interest of collier-owners is, that up to 1840 the Davy lamp was the only lamp used, but at that time a Belgium engineer, M. Mueseler, brought out the lamp which bears his name, and which has now almost entirely supplanted Sir Humphry Davy's invention in the pits of Belgium. The objections urged against the Davy lamp were these:—first, that it was not always to be depended upon against every explosive combination of atmosphere; secondly, that an enlargement in one of the meshes of the iron network was

sufficient to cause an explosion where fire-damp existed in any quantity; thirdly, that when the lamp was exposed to draught, or moved rapidly, the flame might pass through the meshes and communicate with the explosive gas; fourthly, that a drop of oil, or a mixture of oil and coal-dust, adhering to the outside of the lamp, might become heated, and ignite in the midst of fire-damp; and, lastly (and this, perhaps, is the gravest objection to the Davy lamp), that its light, which is at no time good, becomes almost totally obscured after being some hours in the pit, from the meshes being choked with coal-dust.

M. Mueseler's invention, though constructed on the principle of Sir Humphry Davy's lamp, is said to be so far free from its disadvantages that it is perfectly free under all atmospheric combinations, even when its wire network is enlarged or broken; that it gives a light equal to that of two Davy lamps; that it burns less oil; and that it goes out when the flame is brought into contact with carburetted hydrogen, thereby giving warning of the danger.

On the other hand, it is heavier than the Davy lamp, and is apt to go out when placed on a slant or carried out of the perpendicular. This latter objection made the Mueseler lamp unpopular with the pitmen, especially in mines where the seams are irregular and on an incline, for the workman was at any moment liable to be left in the dark, even where fire-damp did not exist. Notwithstanding this fault, the Mueseler lamp, on account of its superior safety qualities, is now generally used in the Belgian collieries.

All over our mining districts at this hour, new lamps are being carried about, and ingenious men, like the self-taught chemist of Ruabon, are wasting great energies in perfecting improvements which the Belgian engineer has long succeeded in effecting. Lord de Walden's report, which has just been delivered to Members of Parliament, will throw valuable light on the Davy lamp question.

All this imported knowledge we extract from a single report of Her Majesty's Secretaries of Embassy and Legation on the Manufactures, Commerce, and Industry of the countries in which they reside. We have used only Lord de Walden's report on Coal, as found and worked in one country—Belgium; and our extracts are but a sample of the facts communicated. We leave it to our readers to say whether an item of "Imported Knowledge" is not as valuable to the people and operatives of these realms, as any imports of manufactures, raw or finished; and whether important results may not be accomplished, should the suggestions we have ventured to make be acceded to, and the same resident officials be instructed to report upon the conditions, laws, and usages of labourers, as well as labour.

The Temperance Question in its Industrial Aspects.

Whether man is naturally a lazy or labour-loving animal, is not a question with which we need embarrass ourselves on the threshold of this paper. By constraint, if not willingly, the great majority of men have to work to live; and it is to be hoped, for the credit of our humanity, that habit, our second nature, brings to the majority a contentedness in the prosecution of daily tasks which may, at first, have been more irksome than agreeable. We are by no means willing that so commodious and opulent a term as "industry" should be restricted to the industry associated with unskilled or even cunning handicraft; but the *usus loquendi* is tyrannical, and it is in vain to deny that the mention of industrial operations and industrial classes is generally connected, both by speaker and hearer, with the workmanship and workmen for whose particular interests this journal is conducted. It must be understood, then, that conforming for the present, at any rate, to this popular phraseology, we have an eye to that species of industry of which power, manual or mechanical, is the great instrument, and the increase of material wealth the principal intent. Such industry, in a highly civilised country, must be under the guidance of high intelligence; and though it differs from the industry that deals intellectually with ideas of beauty, scientific truth, and moral duty, its importance to the well-being of society is not likely to be overlooked. What the body is to the whole man, *that* material industry is to the whole community; and all good citizens are concerned both in its utmost possible development, and in its best possible effect upon the condition of the sons of industry themselves.

It may be assumed, as self-evident, that, in proportion as the Temperance movement is successful in separating the industrial classes from the love and use of strong drink, the injuries to industry arising from drinking and drunkenness will proportionally diminish. This may be assumed as being in accordance with the principle that the effect ceases with the cause, and as the well-attested result wherever the experiment has been tried. The love of intoxicating liquor and indulgence in it have, undoubtedly, much to answer for in reference to industrial enterprises and results.

First, an indisposition to labour is a very common effect of drinking tastes and habits. Men "on the drink" are on the strike against everything in the shape of honest industry; and this form of strike is, unhappily, too common to attract much attention. Saint Monday is still more than a name in the calendar of myriads of workmen; and tippling during working hours is not quite unknown in establishments, large and small, devoted to industrial pursuits. A calculation has been made, that the loss of time from drinking alone is equivalent to the surrender of one entire day a week on the average, or fifty-two days a year from the working-time of the working classes. The use of beer has long been notorious for its effect in producing an aversion to sustained action of mind or body, and the engendering of a heavy, apathetic disposition. This has been ascribed to the drugs said to be mixed with public-house beer, but some deeper cause is rather to be suspected. Aware of this tendency, some non-abstainers carefully avoid all use of strong drink till their day's work has been concluded. It will be observed that we are referring less to the drunkenness of intoxication, which puts a total stop, while it lasts, to industrial effort, than to the influence of much more measured potations.

Secondly, a great reduction of industrial operation is the necessary result of this drinking in all its degrees. If one day per week is lost to each workman (taking, observe, an average—some losing more, some less, and others little or none), the loss of work, in the aggregate, cannot be less than one-sixth, and the value of industry thus sacrificed, both directly and indirectly, must be immense. There is reason also for believing that, while the loss in wages is one-sixth, the loss to employers, and to the industrial wealth of the world, is even greater. Where the absence of men, through drink, stops the execution of important contracts, the injury inflicted is not to be reckoned simply by the time consumed in drinking. Punctuality is a power in business, and "the pot" is no friend to punctuality. Nor can it be denied that grievous injury is often suffered by very sober workmen through the tippling of others, without whose co-operation orders cannot be completed. Division of labour is an excellent principle; but when even a minority of the labourers are paying their devotions to Sir John Barleycorn, the result frequently is a serious subtraction from the work and wages of their mates. In this way, working men may, without intending it, prove bitter enemies to the interests of their fellows.

Thirdly, the quality of the work actually performed will suffer in some measure from the use of alcoholic liquors. Steadiness of nerve is impaired, clearness of judgment is diminished, and many a clever operative becomes prematurely disabled, because he takes into his mouth an enemy that steals away his power of employing his senses and intelligence. Besides this personal effect, men given to "potting" are apt to resort to "scamping" and other mean devices to make up for lost time. Industry mangled and marred is among the consequences of the drinking system.

Fourthly, the waste of life among the industrial classes from intemperance—not intoxication only—is very great, involving a heavy industrial loss; and, as thousands of children are annually destroyed by parental neglect, who if they survived would recruit the industrial classes, the total of loss from this source is greater than can be computed.

Fifthly, as the whole country is a sufferer by any large waste of industrial energy and skill, this sacrifice of industrial power and produce from drinking conduct is a national calamity; and the losses thus visited upon society can *never be repaired* by any subsequent addition to its industrial resources.

Window Plants and their Culture.

Window plants are almost universal favourites. They may be found everywhere—in places the most unlikely, and under conditions seemingly very unsuitable. But there are very few places where a real love for flowers will not succeed in making some plant grow. And what can be prettier than the constant presence of flowers and foliage, even the simplest; or more interesting than the constant change which is going on under our own observation, and almost under our control?

That many are deterred from growing window plants, either from ignorance, or the remembrance of past attempts and failures, or from a mistaken idea as to the expense, time, and trouble required to succeed, I do not doubt. I hope, therefore, to dispel such objections from the mind of any reader of these papers who may wish to try.

There are very few persons who cannot find time to give a half-dozen plants the necessary treatment to ensure their growing and flowering. A few minutes every morning will be amply sufficient for the care of a few, and when potting and putting cuttings down for fresh plants, and other operations, which will be pointed out, become necessary, any one who cannot find time to do them, may as well either pay, and get them done, or give them up altogether. As to expense, all depends on the way a person sets about getting the plants. If a constant succession of bloom is to be kept up, it can only be done regardless of that item; but if a few plants are grown, such as geraniums, fuchsias, begonias, verbenas, &c., there are very few persons who cannot procure slips of these, and by following the directions which will be given, rear from these slips, or cuttings, good flowering plants. There is the less difficulty in thus getting a stock of plants, as it is necessary to prune nearly all pot plants at times, so as to ensure a dwarf bushy growth and plenty of foliage; and these prunings are most suitable for growing young plants from.

To grow them successfully in rooms, there are some general rules which apply to the treatment of all pot plants. These shall be considered first; and then the plants that are most usually grown, and are most suitable, will be treated of separately and in detail.

In raising young plants from cuttings, or slips, care must be taken to have a portion of old wood attached. Cuttings are, as their name implies, small pieces cut off a branch; a branch may be cut, if long enough, into several pieces, and by cutting each of these pieces square off below a bud, and taking off the lower leaves neatly with a sharp knife, each of them will most likely grow. This method need only be followed when many plants of one kind are wanted. A slip is a very short young branch, slipped, or carefully pulled off from the main branch, or stem, on which it is growing; at the end which comes off, there is generally a little piece of bark, which peels off the main stem. This slip must be cut off, as if it be left on it often decays, and causes the lower portion of the slip to rot, and the whole is lost. Slips are most easily procured in spring, and verbenas, fuchsias, heliotropes, and several other plants, can be most easily grown from slips taken when about two inches long.

The great point to be aimed at in growing slips in spring, is to keep them from withering at all. Let them be planted carefully in well-drained pots, get a good watering, and then cover them with a bell-glass, or even an old tumbler, and put them in some warm place. Carefully watch for diseased or yellow leaves, cutting them off immediately they appear. Keep the plants from flagging, from want of moisture either at the roots or in the air in the bell-glass. Let them have fresh air once or twice every day, and always use tepid water, the cold just taken off, so that they may not be checked, and in a short time the little slips will be growing nicely. They may be grown separately, or four or five may be placed in one pot round the edge. To prevent the pots getting dry, the best plan is to sink them in a box with sand in it, which will prevent

evaporation, and keep the soil in all the pots uniformly moist; or, if there is but one pot filled with cuttings, place it in another, about an inch wider every way, and fill the space between with moss or sand, and keep all damp.

Cuttings of pansies, fuchsias, chrysanthemums, and many others, will grow if they are placed in small phials of water in the sunlight; they will send out clear white rootlets, and may then be transplanted. Several may be grown together in a deep saucer filled with sand, and water poured in till it rises on a level with the top. A number of short cuttings placed in the sand, and covered with a bell-glass, will very quickly strike.

When potting separately the plants obtained from these cuttings, care must be taken to have the pots nice and clean, and to have them soaked in water for a short time beforehand. The earth used in potting must be rather dry than wet, and if close and heavy will be improved by having a little sand mixed with it. A little *well-decayed* manure placed above the drainage, and then covered with some earth, so that the roots may not touch it at once, will, for strong growing plants, be very useful. It is very necessary to secure good drainage in the pots: to attain this end, place over the hole in the bottom a piece of rough slate or an oyster-shell with the curved side uppermost, over this lay some pieces of a broken pot or some lumps of charcoal, then some more lumps still finer, and over this place the manure and earth.

There is nothing conduces so much to the health of plants in pots as care in regard to watering, and keeping the leaves in a clean state. Plants perspire greatly, and anything that stops the pores, with which the leaves are thickly covered, will soon destroy the leaves and they will fall off. Nothing looks more dismal than a geranium or fuchsia with a half-dozen bare branches, and a few leaves on the top of all. A plant well furnished with leaves looks nice even when out of flower, and nothing shows off the flowers to greater advantage than the background of green leaves which the plant, if well treated, will produce so abundantly.

In order to keep the plants healthy and covered with leaves, they must be either protected from dust, or else have the leaves frequently sponged with slightly warmed water and a piece of very soft sponge. If your plants have not been accustomed to such treatment, try it for once, and you will be surprised at the colour of the water when the operation is complete, as well as at the improvement in the appearance of the plant.

Care in watering chiefly consists in *carefully* supplying the *wants* of the plant. Every plant requires water in a different proportion, and at different seasons the same plant requires to be differently treated. The only treatment that will maintain a cactus in a flowering state is to keep it nearly dry from the time it has done flowering until the spring comes round again, when, for a couple of months, it must be supplied freely with as much water as it wants. This is just the treatment it receives in its native place. If a geranium is treated in the same manner, what will be the result? If a geranium and a cineraria are treated in the same manner, say about January or February, when the latter will be coming into blossom, the geranium, on getting as much water as the cineraria *requires*, will drop all its leaves, while the amount of water that would keep the geranium healthy, will leave the cineraria with withering leaves, and it will be quickly covered with green insects. Of course, any one will see that three such different plants require different treatment; but I want the principle that may be drawn from these experiments to be applied in every case, and, noting the peculiarities that will be seen to belong to each plant, treat each one differently. Plants always require more water when flowering than when they are at rest; they require generally a season of rest, after a while they begin to grow, then they must get water enough, and flowering is the final result—the perfect state, if it may be so called, of the plant. And, as most plants flower in the summer and autumn months, they require more water in these seasons than in winter, when they generally are at rest. Plants seem to be best suited when they receive a copious watering when *necessary*, be it seldom or often. "A little and often" is a very bad rule. The water is better with the chill taken off it, for the earth in the pots is of the same temperature as the air of the room in which they grow, and every application of cold water gives the plant a check which more or less injures it, and renders it subject to the attacks of insects.

Combinations of Employers or Employed.

We supplement our recent articles on the law relating to employer and employed by a statement of its provisions with regard to strikes, and combinations of both masters and workmen for trade purposes. We are glad to observe that working men have taken a great interest in the subject of these articles, and that, at the solicitation of the Working Men's Association, Lord Elcho has lately obtained a select committee of the House of Commons to inquire into the entire law affecting master and servant. Such an inquiry will doubtless lead to some useful results, for in many respects the law is admittedly imperfect. It has not been our purpose to point out its imperfections, but our readers will form their own judgment upon them from the summary we have given.

The origin of our law relating to combinations of workmen is curious and remarkable. In the reign of Edward III. a severe pestilence carried off a large number of the people, and the consequence was that the surviving labourers obtained a much higher remuneration than before. An Act of Parliament was soon passed to check the rise in wages, and this enacted that labourers should thenceforth receive only such remuneration as was common in the districts where they resided before the plague broke out. This Act, passed in 1350, is known as the 25th Edward III., cap. 1.

A great deal of dissatisfaction and dispute naturally arose under this enactment, and two years after a Statute of Wages was passed, which fixed the amounts that should be paid to labourers and ordinary artificers. Other acts were subsequently added to enforce compliance with the provisions of this statute. In 1425, mediæval legislation on the subject was crowned by an Act (3 Henry VI., cap. 1) which made it felony* for masons to combine together to obtain an advance of wages above the statute rate. In more enlightened times this law fell into disuse; but it may surprise our readers to learn that it was not erased from the statute-book until 1824.

At the close of the last century a statute of wider scope, though less severe in its penalties, was passed against combinations. This is known as the 39 and 40 Geo. III., cap. 105. At the present day this appears, also, to be an enactment of the Middle Ages, for it prescribed that any workmen who should enter, either verbally or in writing, into combinations for the purpose of obtaining an advance of wages, or similar objects, should be punishable by imprisonment for three months, or by committal to a house of correction for two months, with hard labour. The oath of even one witness, before two justices of the peace (who might possibly themselves be employers of labour), was sufficient to secure conviction.

The effect of this law was to prevent open combinations, but, at the same time, to increase those of a secret and far more mischievous character. The working classes, having no chance of remedy for any trade grievance by united action in public, resorted to private conspiracy, and indulged in frequent and lamentable acts of violence. It became the general feeling that such a state of the law did more harm than good, and, therefore, a bill was carried through Parliament for the repeal of the existing statutes, and a new Act was passed—the 6th Geo. IV., c. 129—which, with an explanatory Act of 22nd Victoria, forms the present law on the subject.

Under this Act of 6th Geo. IV., it is lawful for any persons to meet together for the purpose of consulting and agreeing as to the rate of wages they shall demand, or the hours they shall work. They may also enter into engagements, written or verbal, among themselves, for the purpose of fixing such wages or hours of work. Masters, also, may meet and agree in the same manner as to the wages they will give, and the rules they will adopt as to hours of labour.

But, although liberty is thus given to any number of men to arrange the conditions under which they will labour, or to confer as to alterations they may desire, there are stringent provisions in the Act against any attempt to enforce their own views, in any way whatever, upon other workmen. Any person who, by violence or threats, endeavours to force a workman to leave his employment, or return his work unfinished, or who endeavours to prevent a workman from being hired, or from accepting work, is subject to imprisonment, with or without hard labour, for any term not exceeding three months. The same penalty is enacted for the use of violence or intimidation for the purpose of inducing a workman to belong to a club or association, to contribute to a fund, to pay fines or penalties, or to comply with rules affecting wages or the hours and quantity of work. And any one endeavouring to force a manufacturer, or other person engaged in business, to alter his mode of carrying it on, to limit the number of his apprentices, or to change the description of his workmen, is also liable to the same punishment.

Powers are given to two justices of the peace to enforce the provisions of this measure; but neither magistrate must be engaged in the particular trade in which the dispute has arisen. Their decision may be appealed against at the quarter sessions. In London, a metropolitan police magistrate may adjudicate on questions arising under the Act.

A later statute makes assaults arising out of any combination for the purpose of raising wages, &c., specially punishable by hard labour.

Since combinations of workmen have been permitted by the law, strikes have ceased to be illegal in themselves. Every one is at liberty to labour, or refrain from labour, and to concert with others as to the conditions under which they will work, or cease from working; but it must be clearly understood that the slightest attempt to coerce another to leave his employ, or to abstain from accepting work, or to work under any other conditions than those which he himself may select, is an offence punishable by the law. Violence is not held to be necessary to this coercion; intimidation, obstruction, or molestation of any kind, is sufficient to incur the penalties of the Act.

We must reserve for another paper a few instances of the application which has been given to the Combination Laws in the cases of both employers and workmen, with the provisions for Arbitration between them.

* Felony is the highest class of crime known to the law, and although it did not necessarily involve the punishment of death, as sometimes erroneously supposed, it entailed the forfeiture of property and goods, in addition to the prescribed punishment for the offence itself.

LABOUR.

There's a never-dying chorus
  Breaking on the human ear,
In the busy town before us
  Voices loud, and deep, and clear.
This is labour's endless ditty;
  This is toil's prophetic voice,
Sounding through the town and city,
  Bidding human hearts rejoice.

Sweeter than the poet's singing
  Is that anthem of the free;
Blither is the anvil's ringing
  Than the song of bird or bee.
There's a glory in the rattle
  Of the wheels 'mid factory gloom;
Richer than e'er snatched from battle
  Are the trophies of the loom.

See the skilful mason raising
  Gracefully yon towering pile;
Round the forge and furnace blazing
  Stand the noble men of toil.
They are heroes of the people,
  Who the wealth of nations raise;
Every dome, and spire, and steeple
  Rear their heads in labour's praise.

Glorious men of truth and labour,
  Shepherds of the human fold,
That shall lay the brand and sabre
  With the barbarous things of old.
Priests and prophets of creation,
  Bloodless heroes in the fight,
Toilers for the world's salvation,
  Messengers of peace and light.

Speed the plough and speed the harrow;
  Peace and plenty send abroad;
Better far the spade and barrow
  Than the cannon or the sword.
Each invention, each improvement,
  Renders weak oppression's rod;
Every sign and every movement
  Brings us nearer truth and God.

J. Rushton.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

APRIL 14, 1866.

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Workmanship.

It is certainly a matter of satisfaction to see, from the letter of the Secretary of the Metropolitan and Provincial Working Classes' Industrial Exhibition, which appeared in No. 13 of this journal, that a silver medal, placed at the disposal of the Committee of this Exhibition by the liberality of Robert Murray, Esq., F.S.A., of Kimahaird, Ross-shire, is to be awarded to the most ingenious contriver of a very useful and much-needed domestic machine, suggested by one of our correspondents. We restrict ourselves in this article to the question of workmanship, so allied to ingenuity. Ingenuity, which implies, and indeed includes inventiveness, is properly singled out for reward, it being a higher quality than skill. Workmanship implies skill, which is no mean qualification; but it also implies more than mere skill. Workmanship implies finish and thoroughness, and these are qualities that every man can compass. In daily life every man cannot attain to eminence, but he can to honesty; he may never acquire gracefulness, but he can vigour: so in industry, a workman may miss inventiveness, or lack skill in the sense of fineness of work, but he may attain to thoroughness, the essential quality of workmanship.

The value of workmanship may be well illustrated by what occurred at the first Great Exposition of Industry at the Crystal Palace, opened in Hyde Park in 1851. The majority of articles exhibited there were chiefly designed for effect. Nearly all articles were showy. Many, indeed, were excellent. In design and finish, multitudes of objects commanded and deserved admiration. But a far greater number, admirable for pattern, for novelty, for newness of contrivance, for originality of adaptation, were wanting in durableness. They were not put together in a lasting manner. So far as the fault lay in the material used, the firm who sent or caused inferior materials to be used were responsible for that, and not the artificers who worked them up. The point we have in view is the workmanship—the way in which the materials are used, the manner in which the articles are put together.

For instance, in the department of iron and steel manufactures, there were fire-grates of a very handsome pattern; but if you examined them closely, you found that the cast-iron plates of which the frames were composed, were not perfect. There had been sand-holes in them, and these holes had been plugged up, and the places showed like small white stars on what is techuically called the "dead white" of the surface. The steel portions were imperfectly burnished. Either the burnishing tools, which it requires peculiar ability to make, were defective, or the steel was imperfectly prepared, or the burnisher himself was not master of his art. Only very skilled workmen can burnish a plane of steel. In fine, there was a want of workmanship apparent in many of these articles, and the reputation of the town sending them suffered in proportion. If you looked behind some of these articles in bright iron, you perhaps found had fitting, which rendered the stability of the structure insecure. The threads on the screws were weak, or the nuts were badly tapped, or were too thin, or the pins and staples were too long or too short, were wastefully made, were ugly or insecure. True, all these things were out of sight, and therefore thought unimportant. But the quality of the workmanship is shown by the state in which work is left which is out of sight, and the quality of the workman's mind also. His economy in the use of material, his taste and workmanly thoroughness, are shown in these small things. Though small, they are not unimportant. The durability, the lasting quality of the article constructed depends upon these things. A steel fender, for instance, in which these little neglects occur, may be a very beautiful object to the eye, but it would give way on the very first accidental kick it received, and which it would be sure to receive before it had been in use long. The fall of a poker upon it would indent it and make it "start," and its parts become loose.

Articles of cabinet-work, of carving and gilding, were in many cases open to similar criticism. Every person unfortunately has experience which will enable him to understand this. Chairs, sofas, bedsteads, in household use, continue to give way, in use or removal, in a most provoking and expensive manner. A picture or looking-glass frame becomes shabby in an unexpected way. Damp or stains affect them, and spoil them before half their time of duration has expired. Any man who has visited an old ruin, and examined it curiously, has found that the old workmen had a thoroughness about them which is now rarely met with. In the curious carving of old temples—in Melrose Abbey, for instance—the back of the foliage, the rear of the curious leaf, or grotesque figure, there is the same care and finish, as far as possible, as in the parts which meet the eye. Like the creations of Nature, every part of the work is perfect; so that the entire association of ideas about it is wholesome and satisfactory to the mind. This is the result of workmanship—a far higher quality than is generally supposed.

At the last International Exhibition many noble articles of manufacture were entirely spoiled through subsequent treatment, and want of a sense of manufacturing taste. There were a set of splendid steel bells, of novel material and great perfection of workmanship, which the exhibitor painted after they were suspended, hiding all the glory of the texture and polish of the steel. There was a magnificent anchor of most graceful shape; its very massiveness and stupendousness had been made a thing of beauty by the well-directed strokes of the forgers. Every blow was a work of skill, and the sign of it a thing of pleasure to trace. This, too, by some imbecility of judgment, had been painted, so that all the pleasure of the rare workmanship was lost. The forging of the anchor has been the subject of one or two noble paintings, and of one of the most spirit-stirring poems in our language. The anchor of which we speak, was of itself a poem of manufacture; and it was almost a grief to find the splendid texture of the wrought iron painted out of sight.

In articles of wood-carving and cabinet manufacture, the greater part are far more beautiful as they leave the workman's hands, with the mark of the plane and the chisel upon them, than ever they are when trea cherous polish has touched them. The commonest wood, with the bloom of labour upon it, is far daintier to the eye than any veneering can make it. The sculptor's work would be ruined if his marble statues were painted. And, as Mr. Ruskin puts it, "an honest brick is far more beautiful than any stucco."

We may some time speak of the waste of money and poorness of result which working men achieve in furnishing their own houses. They, at least, might set custom at defiance, and create a new style of house comfort, were they inspired with the true feeling of simplicity and durability. We make these suggestions for the consideration of many of our readers and correspondents, who are interested in the improvement of Working Men's Industrial Exhibitions. Workmanship and taste are qualities which every contributor could, in varying degrees, display; and these should be watched for, discerned, commended, and rewarded.

The London Tailors' Strike and Lock-out.—The conflict between the London employers and the operative tailors has terminated in an agreement, binding on both parties, being drawn up, by which the men are to receive the advance of one penny per hour, yielding, at the same time, some minor claims made by them. The struggle was a peculiar one, and its progress proved that capital and labour are not always and at all points unequally matched in contests of this kind. From the first the masters were completely defeated in their endeavours to fill their shops with foreign labourers. The telegraph wires were early put in operation by the working tailors' committee; and the agents of the masters, sent abroad in search of workmen, found their persuasions futile, because too late. The locked-out tailors became jubilant at their success, and naturally looked for a speedy settlement of the dispute—of course, to their own satisfaction. The *Pall Mall Gazette*, contrasting the rates of wages received by the artisans in towns with those obtained by labourers in the country, observes:—"The better class of men who are employed as carters or shepherds, and still more those really skilled labourers who are needed in the use of farm machinery, and who earn from fourteen to fifteen or sixteen shillings a week all the year round, though working very short hours in the winter, cannot be put down as really costing their employers much less than fourpence per hour, considering on how many days the value of their labour is diminished to a formidable extent. Compare, now, these scales of payment with those of which town workmen are now complaining, and which masters are, for the most part, defending. At the largest tailoring house in London, the very best workmen have been earning sixpence per hour; and the Scotch shoemakers have been earning, in Edinburgh, less than threepence-halfpenny per hour. Whether, under these circumstances, their strikes are prudent for themselves, or mischievous to the public, we do not now discuss; but the real facts should be borne in mind, with the additional consideration that strikes and combinations of all kinds cannot possibly resist the operation of necessary economical laws. A rise in wages, whether or not it be the result of a strike, means simply a rise in the price of the complete manufactured article; which again means simply a diminution in demand on the part of the consumer. Things must, therefore, inevitably adjust themselves, and the duty of the law is to see that no violence be imported into the contest between capital and labour."—[Perhaps some of the readers of the Working Man may feel inclined to favour us with their views as to the possibility of the present general rise in wages being permanently maintained.—Ed. W. M.]

Hope for the Spitalfields Weavers.

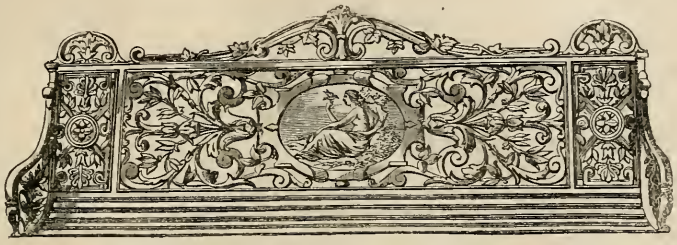
We are glad to see that practical Co-operation has at length made its way into London. Co-operative stores are highly useful contrivances, and we have borne frequent testimony to the lesson they teach and the good that they do. But the form of *manufacturing* Co-operation is yet more important, and implies the attainment of higher qualifications on the part of those who engage in it. Nowhere is the ameliorative influences of Co-operation more needed than in Spitalfields and Bethnal Green. The condition of the silk weavers in these districts has been for two generations a blot upon the metropolis. Statesmen have deplored it, and the Court has more than once endeavoured to effect improvement by setting the fashion of wearing the productions of these ingenious artificers. But improvement in trade seldom brought much relief in the way of improvement in wages. Fashions are proverbially fitful; no human power can make them permanent, and the silk-weaving trade has again relapsed into its chronic condition of badness.

Co-operation has now come to its aid, and promises a relief more effectual and permanent than had hitherto been thought possible. A crowded meeting has been held in the Union Hall, Parliament Court, Artillery Street, Bishopsgate. Numbers could not obtain admission, so eager were the operatives to take part in the proceedings. This is a sign as creditable as it is hopeful of success. The object of the meeting was to form a Spitalfields Co-operative Manufacturing Company, under the Limited Liability Act of 1862. Messrs. W. Fithian, R. Nichols, Du Cane, Delaforce, Holland, and others, delivered speeches in explanation of the proposed plan. At the present time the broad-silk weavers are practically compelled to work fourteen or fifteen hours a day to earn the average wages of ten shillings a week.

It is calculated that by forming a Co-operative Company they will earn, at least, £1 a week. The capital of the company is fixed at £100,000, divided into 100,000 £1 shares. As is usual, five shillings a share is to be paid on application, and a second five shillings on allotment. The weavers who take shares will have the option of paying one shilling per share at the time, and 20,000 shares will be reserved for them at par. In order to enable them to pay their shares they will be given work by the company, who undertake to pay an average on all descriptions of fabrics of 25 per cent. over what they are at present receiving.

We congratulate the broad-silk weavers on the prospect thus open to them. Mr. Du Cane said that, from calculations he had made years ago, he was satisfied that the weavers could get a rise of 75 per cent. on their wages instead of 25. Mr. Delaforce confirmed this opinion. He said that the Germans could not drive them out of the market, as the low velvets were actually higher in Germany than they were in Spitalfields, while the German yard was only equal to their three-quarters of a yard. Again, in France the price paid per yard for labour was more than in Spitalfields; and how, then, could the French manufacturers run them down?

The promoters of the proposed company think that they can get to work in a few weeks. At the conclusion of the meeting it was announced that those who wished to take shares might then come forward and sign the application, when a perfect scramble took place to get to the platform for this purpose. We shall look forward with great interest to the plan of the management and the organisation of the company.

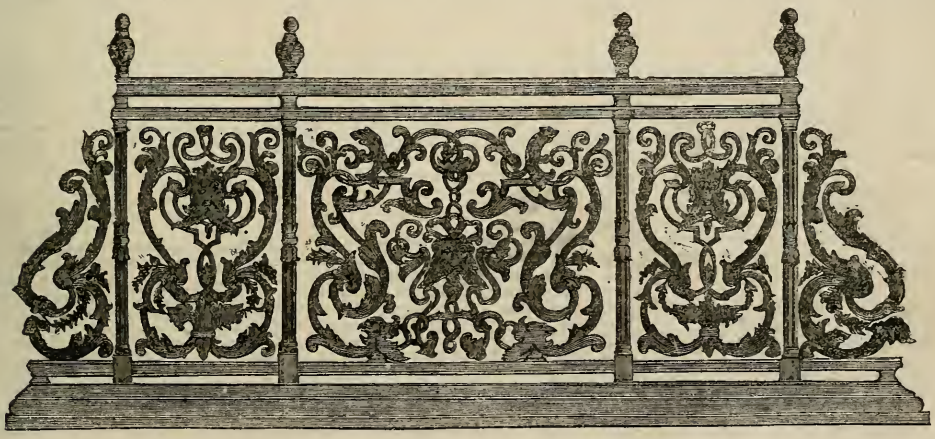


Art Designs

FOR USE IN TRADES AND MANUFACTURES.

ORNAMENTAL IRON-WORK.

Before Quintin Matsys abandoned the forge for the palette, he had already achieved a reputation for the tasteful character of the ornamental iron-work which he fashioned into shape with the strokes of his heavy hammer. But he did not stand alone in skill, for his was a time when much that was of an ornamental character was considered an indispensable adjunct to even the commonest article made of iron. In after years, the ornamental character of much of the iron-work produced underwent a marked change. It became formal and poor in style to an almost incredible extent, especially in England, where the use of ornament in iron-work was almost, if not wholly, unknown. The Great Exhibition of 1851 produced a revolution in this direction. Our metal-workers beheld what was being done by their Continental rivals, and hastened to emulate them. The change has been felt in every branch of the iron trade, especially in those connected with the production of articles of daily use. The two illustrations given by us indicate, so far as they go, the union of utility with taste, which now forms not the least promising feature in modern metal-work. The first represents the upper part of a garden-seat, and the second a portion of some railings.



The Bessemer Steel Works at Piombono, Italy.

The Magona d'Italia Bessemer Steel Works at Piombono, erected by Messrs. Novello, Pousard, and Gigli, the patentees in Italy, have been wholly built and furnished with the most complete modern machines within little more than a year, and they were inaugurated on the 11th of March by a public festival, which is described in very glowing terms by the Italian journals. Prince Amadeus, son of the King of Italy, is known for the intelligent interest he takes in manufactures in general, and in this establishment in particular, and he signified his intention to preside personally at the *festa*; but the recent death of his brother, Prince Oddone, preventing his appearance on a festive occasion, he deputed the Marquis Torelli to represent him, and make an official report. More than a hundred persons distinguished in parliamentary life, in science, and in engineering gathered from distant parts of Italy, and declared themselves well repaid by the magnificent spectacle of the conversion of three tons of molten iron into steel by the Bessemer process, and expressed their surprise at finding such extensive works in active operation, where but a few months before the corn was growing.

The geographical position of the Magona d'Italia proves to have been most judiciously selected. It has enabled the proprietors to overcome many of the natural disadvantages inherent to the making of iron and steel in Italy. About a thousand yards of frontage along the shores of a natural harbour, on the site of the ancient Porto Faliegi of classical history, have been purchased for the Magona d'Italia. The rich iron ores of Elba, the charcoal produced in the woods along the coast of the Tuscan Maremme (marshes), and the lignites dug in the neighbouring hills, can be landed direct on their own premises at a quay constructed by the firm. A very short branch rail from La Cornia station of the Maremme Railway has been approved by the provincial council, and will shortly afford new facilities of access. The Magona d'Italia being in the midst of a hilly promontory, is exempt from the summer marsh-fever, which compels the closing of the Royal Iron Works at Fallonica from June to November in each year.

Italy has no native deposits of bituminous coal, although lignites and other mineral fuels are worked in the hills bounding the Maremme, which are serviceable for secondary purposes. Good iron ores are found in many Italian provinces, and Tuscany is especially favoured with abundant mines of the purest and richest iron ores in the world. Those on the island of Elba are worked at five chief points, at Rio Albano, Vigneria, Rio Marino, Terra Nera, and Calamita. At Calamita the iron is highly magnetic. The ores from all

these mines are especially adapted for the production of steel; and of the mines, those at Rio Marina are the most ancient and most important.

The method of working these mines—or rather quarries, since they are open excavations in the mountain-sides—is in the most primitive style, and capable of much improvement, while considerable outlay would be necessary to improve the access to the rugged coast of the island.

At the Magona d'Italia only one blast-furnace is as yet in blast, but the hydraulic lift and tower for charging have been prepared to supply a second. Vegetable fuel alone is employed, and the crude (or cast) iron is obtained from the ore in the usual manner. When the blast-furnace is tapped, the crude iron is run direct, and while still hot, into the convertors, as proposed by the inventor, thus avoiding the cost of re-heating—an especial economy in Italy, where fuel is costly. We believe that it is at the Magona the direct making of steel has been for the first time fully carried out. By careful attention to the levels on which the blast-furnace and convertors have been erected, the molten stream flows direct, in a glowing rivulet, falling at once into the mouth of the convertors. This direct method is made possible by the great purity of Elba ore, and the "make" can be regulated so as to be precisely of the quality best adapted to the Bessemer process. It has also been found that the proportion of decrease between the produce of finished steel and the weight of crude iron employed, compares favourably with the results of English and French makers. The flames from the blast-furnace and re-heating ovens are carefully economised by passing through vertical or horizontal boilers, and the steam thus produced gives motion to the blast-engines (two), hydraulic pumps for the rams, and numerous steam-hammers, of varying sizes, capable of dealing twenty-five-ton blows each, down to the handy and quick-repeating strokes adapted for light work. Nine of these are already actively extending the daily produce of steel ingots, amounting now to about six tons, with the expectation of early increase to twelve and fifteen tons, as fast as more hammers and rolling apparatus can be got in their places.

The present demand for steel for agricultural implements, with warlike and other stores for Government, is much in advance of the actual production, and there is, therefore, every probability of a speedy extension of the works which have already given employment and prosperity to the inhabitants of Piombono, besides greatly augmenting its population by the workmen and their families drawn together from other places.

The proprietors comprise in their firm one Englishman, a Frenchman, and an Italian, happily characterised at the inauguration as uniting the commercial qualities of the three nations—capital, ingenuity, and industry; and we may join with the visitors to the *festa* in wishing them a successful career.

The Textile Manufactures of England.

BY WILLIAM ROSSITER, FELLOW OF THE WORKING MEN'S COLLEGE.

III.—FIFTEENTH, SIXTEENTH, AND SEVENTEENTH CENTURIES.

For nearly the whole of the 15th century the rival families of York and Lancaster struggled for the throne of England. The feudal power of the land was divided against itself. Great lords, such as Westmoreland, Somerset, Buckingham, and Exeter, on the one side, strove against the still greater lords of Warwick, Salisbury, and Northumberland on the other; each party trying to set up a king of its own faction; each deserting and trying to depose him it had set up as soon as he attempted to be a king and not merely a partisan. It was in this strife, out of which came good for England, that the feudal system of the country wore itself out. It was during this strife that, though spinning and weaving languished, the spinner and the weaver acquired fresh energy; though trade was feeble, the trader became strong.

During the 15th century, the woollen is still the great English textile manufacture. English wool is still the best, but the Spaniards and Flemings still make the best cloth. England sends a great quantity of wool and coarse cloths in exchange for the fine cloth of these two countries, and the Spaniards buy, in return, not only English wool, but, whenever they can, English sheep as well. Silk is still brought entirely from abroad, and cotton is still almost entirely unknown.

In the 16th century the manufacture of silk commences on a small scale, and for small goods only, such as ribbons, girdles, laces, &c. The broad silks for dresses and robes is still brought from France and Italy.

The Netherland (or Flemish) trade in weaving was almost destroyed in the time of Elizabeth's reign. Philip II. of Spain was, at that time, also King of the Netherlands, and endeavoured, by every possible means, to root out Protestantism from every part of his dominions. The Netherlanders revolted against his tyranny, and he attempted, by force of arms, to suppress both their rebellion and their religion. The cruelties of his troops induced great numbers of the weavers to leave the country altogether, and Elizabeth, imitating the policy of Edward III., gladly received into her country many of those whom she had already helped with money and arms in their own country.

By the end of the 16th century, the trade of England was both flourishing and systematised. The Royal Exchange, in London, was opened by the Queen herself, and the trade of the country was encouraged by Elizabeth in every way. The trade with other countries became more direct, and less through the medium of foreign merchants. England, instead of being one of the supporters of the central trades of the Hanse Towns and of Venice, began to be herself one of the chief centres of commerce. The towns of Coventry, York, Norwich, Worcester, and Exeter, began to be important manufacturing centres, and Bristol, Southampton, and Hull to be important ports.

The 17th century was a period of great national activity, commercially as well as politically. The national energy expressed itself in founding colonies, and in organising great trading companies for commerce with the East Indies, with Turkey, with Russia, and with America. The treasures of the East, the silks and spices of the Indies, were no longer doled out to us by the merchants of other countries, but brought hither by our own merchants in our own ships, and fabulous profits were made upon the ventures.

Raleigh and others brought from the West articles of food of which before England had had no thought. Things now of commonest use, which we use almost every hour, were then seen for the first time. Potatoes, sugar, coffee, tobacco, were then counted amongst the wonders brought from the new continent.

The new position that England took as a great centre of the world's commerce was expressed in the navigation laws of this period endeavouring to confine English trade to English sailors and to English ships. The country put itself still more in order, established a Post Office for conveyance of letters throughout the kingdom, a New River to supply its capital with fresh water, and by the early part of the 18th century it had a Bank of England to manage its finances, a Board of Trade to regulate its commerce, and a new and intrinsic coinage to enable its merchants to deal one with another.

Wool was still the great textile fabric of England. It needs the constant repetition of this statement to bring home to us how old is the weaving of wool in this country, and how new the weaving of silk and cotton. The silk trade became, during the 17th and 18th centuries, gradually of more and more importance. Towards the end of the 17th century England received still another immigration of foreign weavers, also, like the Dutch, driven from their homes by religious persecution. A century of religious war in France had terminated, in 1589, by the accession of Henry IV., the champion of the Protestants, who, though he became Catholic himself, gave legal protection to his Protestant subjects. In 1685, Louis XIV. revoked this toleration, and gave the Protestant people the choice of exile or conversion. Some 300,000 chose to leave their country in preference to giving up their faith, and England offered them welcome. Of these, very many were silk-weavers from Lyons, and to them is owing great improvements in the silk manufacture and trade of their new country.

*Mortality in Different Occupations.**

I.—MINERS (*continued*).

The Report of the Royal Commission which was appointed in 1863, to inquire into the means of improving the health and safety of persons employed in mines, contains most elaborate and complete statistics relative to the mortality amongst miners in certain parts of the country.

From that report we have compiled the following table:—

ANNUAL RATE OF MORTALITY IN THE THREE YEARS 1860—2, AMONGST MINERS IN EACH OF THE FOUR GROUPS OF MINING DISTRICTS.

Ages.	Deaths annually to every 1,000 Miners living.			
	Cornish Districts.	Staffordshire Districts.	Durham and Northumberland Districts.	Merthyr Tydfil District.
15—25	9·4	8·3	10·8	13·2
25—35	9·6	9·5	10·9	13·8
35—45	15·1	14·0	11·8	16·2
45—55	29·7	21·0	15·9	21·7
55—65	63·2	50·1	32·6	45·9

It is clear that from some cause the mortality amongst the metalliferous miners of Cornwall is very much greater than the mortality of the coal miners of Staffordshire, Durham, Northumberland, and Merthyr Tydfil at the advanced ages. A comparison of this table with a similar one for an earlier period (1849—53) shows that very little change has taken place in the Cornish districts, save that the death-rate has increased at the three first ages, and declined from 34 to 30 per 1,000 at the age 45—55. In the Staffordshire districts the death-rate has fallen perceptibly at all ages under 55. In the districts of Durham and Northumberland, there is an increase at the three first ages. In Merthyr Tydfil the rate was, in the first period, 21, 20, 24, 34, and 57 at the different ages, so that there, at least, a marked improvement is manifest.

There may be many disturbing elements, however, to render the comparison between the mortality of persons of cognate occupation, but otherwise differently circumstanced, of no practical use. But no exception is fairly tenable if we take men inhabiting the same districts and living under precisely similar conditions in everything save the difference involved in occupation. Adopting this standard, the precise amount of influence which occupation exercises upon health will be at once apparent.

The following table, then, shows the death-rate amongst men of similar ages and inhabiting the same districts as the miners referred to in the previous table, and who are therefore exposed to similar influences of climate, &c.:—

ANNUAL RATE OF MORTALITY IN THE THREE YEARS 1860—2, AMONGST THE MALES OF ALL OTHER OCCUPATIONS (EXCLUDING MINERS) IN EACH OF THE FOUR GROUPS OF MINING DISTRICTS.

Ages.	Deaths annually to every 1,000 Males of the Non-Mining Population living.			
	Cornish Districts.	Staffordshire Districts.	Durham and Northumberland Districts.	Merthyr Tydfil District.
15—25	7·5	5·4	7·2	6·8
25—35	8·3	7·1	7·5	10·2
35—45	10·1	11·4	10·2	13·0
45—55	12·5	18·4	16·2	15·9
55—65	20·0	34·0	26·0	41·1

It will be observed that the difference between the two rates is not so excessive at the earlier ages, which proves that the causes which give rise to the high mortality of the miners, as compared with the non-mining population at subsequent ages, are slow in their operation. The seeds of disease are no doubt sown in the beginning, but their effects are not developed until the mischief is irreparable.

The evidence given before the Commissioners all goes to show that the Cornish miner is peculiarly the victim of disease engendered by the bad sanitary conditions under which his daily work is carried on, for it is stated that if deaths by violence be excluded, the mortality of miners in the

* Continued from page 199.

coal districts of Durham, Northumberland, Staffordshire, and South Wales is *below the average mortality* of those districts; thus proving that mining is not necessarily an unhealthy occupation.

It would carry us beyond the fair limits of our space to discuss the particular results for each separate group of districts; but as a practical commentary on the foregoing, we subjoin an illustration of the effect which the high mortality of Cornish miners has on the premiums they would have to pay for the insurance of their lives, as compared with those chargeable on the life of an average Englishman.

NET ANNUAL PREMIUM TO INSURE £100.

Age.	63 Healthy Districts. Males.	England. Average Male Population.	Cornish Miners.
	£ s. d.	£ s. d.	£ s. d.
20	1 7 7	1 12 5	1 17 6
25	1 11 0	1 16 7	2 3 2
30	1 15 1	2 1 8	2 11 0
35	2 0 3	2 8 1	3 2 0
40	2 7 1	2 16 2	3 16 11
45	2 16 1	3 6 8	4 16 2

The chances of life of the dwellers in the sixty-three healthy country districts are of course greater than those of the average population, so the premium required for the insurance of life is necessarily less from the former. But the increased risk attaching to the Cornish miner's life requires that he should pay a much higher premium than either of the other two classes, to an extent which is rapidly augmented with every advance in the period of age.

We very earnestly commend these facts to the consideration of all who are concerned in the mining industry of Devon and Cornwall—employer and workman alike—in the hope that they will be induced to take such steps as shall remedy the evils which now give to their localities such bad pre-eminence. They will find their account in such a work far more than in strifes and dissensions, which all tend to aggravate whatever is unfavourable in their condition.

Facts and Memoranda.

The area of the South Staffordshire coalfield is ninety-three square miles, and it is estimated that the coal will last 120 years.

As many as 100,200,000 tons of water pass over the Falls of Niagara every hour.

It is estimated that a ton and a half of water falling one foot per minute will grind and dress a bushel of wheat per hour.

Good ash has a tensile strength of 12,500 lb. to 17,000 lb. to the square inch.

The fall of the Thames between Chertsey and Teddington Lock, is nearly 17½ in. in a mile. That of the Nile, from the foot of the first cataract to the sea, is 0·525 ft. in a mile.

Squares of gold-leaf have been obtained so small, that three billions eight hundred and forty million of them would occupy no more than a single square inch; and yet each one would be visible under the best objectives of modern microscopes.

In the Lancashire mines the increase of temperature is 1 deg. for every 51 ft. of perpendicular depth; in those of the north of England, 1 deg. for 48 ft.; in Saxony, 77 ft.; Brittany, 47 ft.; Mexico, 36 ft.; and in Siberia, 30 ft.

It is estimated that the best kinds of steel contain about one-fifth per cent. of nitrogen.

Under the stimulus imparted by photography, a school of English opticians is growing up and already rivalling their foreign competitors.

It is a singular astronomical fact that, whilst there was no full moon this year in the month of February, both January and March each have two—January, on the 1st and 30th, and March, on the 1st and 31st. This accident has never occurred before, nor will it occur again for two and a half millions of years.

It has been found that 1 lb. of hydrogen combining with oxygen is capable of raising 51,146 lb. of water 1 deg. Fahr.; 1 lb. of carbon, 14,500 lb. of water; 1 lb. of phosphorus, 11,900 lb. of water; and 1 lb. of sulphur, 2,800 lb. of water.

The order of the variation of the temperature of man within the tropics is not the same as in England, being lowest in the early morning, after the night's rest; and not as in England, at night, before going to rest.

A Building Society at Florence has already been of signal benefit to the working classes. The buildings completed contain 930 rooms, which are let in sets of from one to five, at the following annual rents, which are paid half-yearly:—One room, 40f.; two, 75f.; three, 110f.; four, 220f.; and five, 300f.

If all the seeds of a plant of hyosciamus, which of all known plants produces the greatest number of seeds, came to maturity, it would only require four years to cover the earth with plants; and if all the ova of a herring became fish, eight years would suffice for its posterity to fill the whole ocean.

In England and Wales 27 letters were delivered to every person upon an average in the year 1864; in London, 51; in Scotland, 20; in Ireland, 9; in the United Kingdom, as a whole, 23—the total number exceeding 679,000,000.

It has been computed that 800,000,000 gallons of fresh water, in a tolerable state of purity, derived from the various sources and tributary streams of the Thames, descend through Teddington Lock every twenty-four hours.

The Victoria Bridge at Montreal is only 176 ft. less than two miles; the Menai Bridge is 1,880 ft. long; the former is therefore nearly five and a half times longer. Waterloo Bridge, over the Thames, is 1,362 ft. long.

There is no stone arch in existence of a greater span than 250 ft. The Chester Bridge, built by Harrison, has a span of 200 ft. That which formerly stood at Trezzo, over the Adda, had an arch of 251 ft. span, the versed sine of the segment slightly exceeding one-third of the chord.

In the course of a series of experiments on the action of exploding gunpowder, conducted by General Pelletier, four pounds of powder were spread on a light wooden platform, which was placed on soft earth; the powder being inflamed caused only a slight depression of the table, but when the experiment was varied by placing a sheet of paper over the powder, the table was shattered to atoms.

Things Talked About.

Very gracefully the Queen has come forward to acknowledge the splendid donation by Mr. Peabody to her subjects—a "noble act of more than princely munificence," well worthy of royal thanks. May her words form another link in the chain which, in spite of all that noisy agitators may say, binds together the two great countries. The Royal letter is as follows:—"Windsor Castle, March 28, 1866.—The Queen hears that Mr. Peabody intends shortly to return to America, and she would be sorry that he should leave England without being assured by herself how deeply she appreciates the noble act of more than princely munificence by which he has sought to relieve the wants of the poorer class of her subjects residing in London. It is an act, as the Queen believes, wholly without parallel, and which will carry its best reward in the consciousness of having contributed so largely to the assistance of those who can little help themselves. The Queen would not, however, have been satisfied without giving Mr. Peabody some public mark of her sense of his munificence, and she would gladly have conferred upon him either a baronetcy or the Grand Cross of the Order of the Bath, but that she understands Mr. Peabody to feel himself debarred from accepting such distinctions. It only remains, therefore, for the Queen to give Mr. Peabody this assurance of her personal feelings, which she would further wish to mark by asking him to accept a miniature portrait of herself, which she will desire to have painted for him, and which, when finished, can either be sent to him to America, or given to him on the return which, she rejoices to hear, he meditates to the country that owes him so much."

Thomas Carlyle has signalised his inauguration as Rector of Edinburgh University, by the delivery of a speech which is worthy of his fame. Delivered extemporaneously, it is less involved in style—less marked by "Carlyleisms" than his written works; but it is, in spirit, essentially akin to the best of them. This is how he urges the students to diligence in their studies, and to be content with such rewards as their work itself will bring:—"The wiser kind of man—the select, of whom I hope you will be part—has more and more a set time to it to look forward, and will require to move with double wisdom, and will find, in short, that the crooked things that he has to pull straight in his own life for round about, wherever he may be, are manifold, and will task all his strength wherever he may go. But why should I complain of that either, for that is the thing a man is born to in all epochs? He is born to expend every particle of strength that God Almighty has given him in doing the work he finds he is fit for—to stand it out to the last breath of life, and do his best. We are called upon to do that; and the reward we all get—which we are perfectly sure of if we have merited it—is that we have got the work done, or at least that we have tried to do the work; for that is a great blessing in itself, and I should say there is not very much more reward than that going in this world. If the man gets meat and clothes, what matters it whether he have ten thousand pounds, or ten million pounds, or seventy pounds a year? He can get meat and clothes for that; and he will find very little real difference intrinsically, if he is a wise man. I warmly second the advice of the wisest of men—'Don't be ambitious; don't be at all too desirous of success; be loyal and modest.' Cut down the proud towering thoughts that you get into you, or see that they be pure as well as high. There is a nobler ambition than the gaining of all California would be, or the getting of all the suffrages that are on the planet just now." Noble words, which the working man, disposed sometimes to cavil at his lot in life, may well take to heart. It is the old, old Gospel—"what thy right hand findeth to do, do with thy might;" the old maxim of the primitive monastic life, *Laborare est orare*—"labour is prayer"—uttered anew.

The Government Dockyard men are protesting, with good reason, against the proposed disfranchisement of their order by the sixteenth clause of the new Bill. It certainly appears most incongruous that the same measure which offers votes to so many now excluded, should also take away the privilege now enjoyed by some of the most industrious and respectable men in the country. The plea, we suppose, is that they are liable to be influenced by the expressed or implied wishes of their superiors; in other words, that they find it almost impossible to exercise the franchise independently. Why punish them for that? Punish the men who use the influence of their position to intimidate those who are, to a certain extent, at their mercy.

We are sorry to record a continuous emigration from the coal and iron districts of South Wales to America. The men and their families are quitting their native shores by hundreds. We have reason to think that they are deluded by promises which will only end in disappointment.

It is stated that the proposed extension of the Factory Acts to the iron and hardware trades will not be proceeded with this session. A majority of the Wolverhampton Chamber of Commerce have passed a resolution to the effect that it is not desirable to interfere with the labour of young persons over the age of thirteen, or of women. Most probably the Government measure, which is only postponed, not dropped, will take a much wider range than that.

Sheffield file-makers, look out. A Bill has been reported in the Senate of Massachusetts to increase the capital stock and power of the "Whipple File Manufacturing Company" by the addition of 1,000,000 dollars (or £200,000) to its capital. It is understood that in the works of this company improved machinery is used in the manufacture of files, the workmen in the United States being always ready to welcome all labour-saving machinery.

The Ironmasters' Association will in future hold its meetings at Birmingham. The number of members is rapidly increasing.

The West Yorkshire miners have held a meeting on Hunslet Moor, near Leeds. A general amalgamation of all the miners of the United Kingdom is looked forward to. The West Yorkshire societies can now pay 12s. a week to a man on strike, and 1s. 6d. for each of his children: and they claim to have already raised wages, by the efforts of the union, 10s. a week. "Five shillings a day, a day's work of seven hours, and a week's work of five days," are the objects now aimed at. What do London bakers think of that?

The directors of the London, Brighton, and South Coast Railway have replied to the memorial presented by the signal and switchmen, asking for an increase of pay. The directors say, "The demand of the men to be paid 30s. a week at junctions, and 26s. at roadside stations, is unreasonable, taking no account whatever of the differences which exist between the work at different parts of the line, which differences are represented as fairly as need be in the present scale of payments. The company's men may safely be told they are better paid and treated than any signalmen in England, unless the South Eastern Company may, perhaps, rival it in that respect; and none of them work eighteen hours at a stretch. Such a thing is forbidden, and if it is done at all, it is for the convenience of the men themselves, and entirely against orders, so that they may take six hours at the next turn of duty in place of twelve."

The Preston spinners have a new grievance, and a very valid one. Some of the mills in which they work are so ill-built, that accidents are of frequent occurrence. One recently, of a very serious character, has alarmed the men, and a memorial to the Home Secretary has been adopted, setting forth the opinions expressed in the resolution, and stating that there are in Preston nearly 100 similar buildings, in which many thousand operatives are employed, who have, in consequence of this accident, become seriously alarmed for their safety.

A blacksmith has been committed to prison for one month, for a "knobstick" outrage, at Manchester. A number of men had struck work, and one, who refused to join in the strike, was maltreated by the prisoner. The month's imprisonment is a severe lesson, but, in truth, a wholesome one.

Captain W. Macbay has published a pamphlet, proposing a truly colossal scheme, which, however, is not likely to be realised: nothing less than the union of England and Ireland by two railroad bridges, one between St. David's Head, in Wales, to the coast of Wexford, forty miles long; and the other, twenty miles long, between Portpatrick, in Scotland, and Donaghadee, in the north of Ireland; the bridges to be built on embankments! Our breath is almost taken away by the colossal character of the scheme; and, after all, what could the bridges do more than could be done by the quick-sailing steamboats of every-day life? The captain

makes no estimate of the cost, but proposes that the work shall be done by convict labour.

America is fast regaining its old supremacy in the English cotton markets. In the two months ending Feb. 28th this year the United States sent us 570,735 cwt. of raw cotton—nearly one-half of the total import, 1,154,122 cwt. In the corresponding two months of 1865 the United States sent 5,719 cwt. out of a total import of 811,601 cwt.

Co-operative Intelligence.

Barnsley.—The British Co-operative Society Report.—The progress made by this society during the past four years which it has existed may be gathered from the fact, that the profit for that period amounts to not less than £1,759 4s. 4d. There are now 622 members, holding £1,933 shares; the increase to the shares during the past quarter amounts to £322 7s. 10d.; the profit for the past quarter amounts to £241 10s. 8d.; the receipts during the quarter show an increase of £578 8s. 8d; the amount disposable for the quarter, with the surplus from last account, is £270 18s. 4d., from which the committee recommended a dividend of 1s. in the pound upon purchases during the quarter. The committee, finding it impossible to transact the business in the present store, made an appeal to the members for powers to erect an additional store, with two eligible frontages, on a plot of land adjoining the present building. The appeal was heartily responded to, and the work has already been let by tender. A new branch store is also in the course of erection at Ardsley, a village near the town.

Tring, Hertfordshire.—The Tring Co-operative Industrial and Provident Society was commenced on the 12th of February, 1866, by sixteen working men. Since that date the number of members has been increased to thirty. The members have exerted themselves so as to subscribe upwards of £8 in seven weeks, although their wages as agricultural labourers rarely exceed 11s. per week at this period of the year.

Saffron Walden.—A Co-operative Society has recently been commenced here; it already numbers forty-one members, who have taken up forty-eight £1 shares. Business operations in the flour and meal trade were to commence during the middle of the past month.

Northamptonshire Industrial and Provident Boot and Shoe Manufacturing Society.—According to the last half-yearly report, the amount of goods manufactured and sold during the half-year, to Co-operative Societies and others, was £2,970; contributions on shares, £177; investments, £50; and the net profit, £264 8s.

Co-operation in Jamaica.—It has been proposed to introduce the Co-operative principle into the cultivation of several of the sugar-producing estates in Jamaica.

Co-operation in Clerkenwell.—A few working men in Clerkenwell and neighbourhood, influenced by the various accounts of the rapid growth and success which Co-operation is making in and around London, and in all parts of the country, held a meeting, on the 15th of March last, at 8, Queen Street, Clerkenwell, when it was unanimously resolved to form a Co-operative Society, to be called the Clerkenwell Co-operative Supply Association (Limited). A committee was subsequently appointed to draw up rules suitable for such societies.

Great Harwood.—The twenty-eighth quarterly report of the Great Harwood Industrial and Co-operative Provision Society (Limited), for the quarter ending March 17th, 1866, shows that there has been seventeen new members added during the quarter, and six withdrawn, showing an increase of eleven during the quarter. A dividend of 1s. 4d. in the pound to members, and 5d. in the pound to non-members, was declared payable on Wednesday and Thursday, the 4th and 5th of April.

General Information.

CLUBS AND INSTITUTES.

The usual "Popular Lecture" meeting was held in the Surrey Chapel, Blackfriars Road, on Easter Monday, the Rev. Newman Hall in the chair. Several hundred people were present. The subject of discussion was Working Men's Clubs, which were warmly approved of by the chairman, and also by Mr. G. M. Murphy, who expressed regret that a great pressure of business had hitherto prevented them from entering into the movement as heartily as they would have wished. The meeting was also addressed by the Rev. H. Solly, and by Mr. Symons and Mr. Dale, members of the Southwark Working Men's Club, who gave a very cordial invitation to the working men present to join it.

Chess Competition.—The competitors for the prize offered by the Council of the Working Men's Club and Institute Union met in the large room, 150, Strand, on March 20th, and also on March 28th. The number of clubs represented was five—viz., Camden Town, Clerkenwell, Essex Road, Shoreditch, and Stoke Newington. The number of competitors taking part in the game was eleven. At their first meeting one game was won and one drawn. On the second occasion, seven games were won and one drawn, one game also having been played in the interim. The next general meeting will take place on Thursday, April 12, in the Office, 150, Strand. Tea will be on the table at seven o'clock, and the chess-playing will commence immediately after.

London Secretaries' Monthly Tea-Meeting.—The usual meeting was held at the office of the Working Men's Club and Institute Union, 150, Strand, on Wednesday, 28th ult., when about twenty members of the London clubs sat down to tea. Members were present from the following clubs:—Paddington, Marylebone (All Souls), Camden Town, Southwark, Vauxhall Bridge Road (Victoria), Chelsea, Wandsworth, Fleet Street (St. Bride's), Islington (Essex Road), Clerkenwell, Shoreditch, Stoke Newington. Those who had come to continue the chess tournament retired, after tea, to a separate room, and the ordinary discussion was carried on by the other representatives of clubs. The Rev. H. Solly presided, and a very interesting discussion, continued from the previous meeting, on the admission of youths to Working Men's Clubs and Institutes, was carried on with much spirit to a late hour. As the main points are dwelt on in a separate article, they need not be related here. The next monthly tea-meeting will be held on Thursday, 26th April, when the presence of members, either of London or country clubs, will be cordially welcomed. The attention of secretaries and committees of clubs is requested to the notice respecting cards of admission given in the Working Man for March 24th, p. 188.

Monmouth.—The attempt to establish a Working Man's Club in this town has proved successful. The institution is supported by voluntary subscriptions. A code of rules has been drawn up for the regulation and guidance, not only of the committee, but those whose benefit is sought. A Provident Club is also to be established in connection with the institution, to which all ticket-holders shall be at liberty to subscribe a sum of money weekly, the deposits to be returnable on the 31st of December in every year, with interest thereon; but should a ticket-holder withdraw his deposits at any time before the 31st December, no interest will be allowed. Suitable premises have been taken, and the necessary preparations are being made for opening the institution at once. The committee will provide, in addition to newspapers and other periodicals, chess, draughts, and dominoes, and have arranged for supplying refreshments at the lowest possible charge. The working man will be allowed to smoke his pipe, and to make himself free and easy.

Rotherham and Masbro' Working Men's Club.—A literary and musical entertainment was recently given in the hall of the above club, and was attended with great success.

INDUSTRIAL EXHIBITIONS.

Hadley.—A very interesting exhibition was opened here on Thursday, the 5th instant, in the Hall Barn. An adjacent part of the building was set apart for objects of interest or curiosity, lent for the occasion by residents in the neighbourhood. The industrial department included articles of the widest range. There was saddlery, tricked out in a way that almost led one to suppose that a horse was encased in it; wheelbarrows refulgent with paint; rustic tables, flower vases, sticks, models of machinery, photographs, needlework of every form, babies' dresses, gentlemen's slippers, screens, curtains, patchwork, embroidery, crochet work, wool work, and far more things, both useful and ornamental, than the casual visitor would have expected. One table was devoted to the works of school children, which did them great credit. A model of Pedmore Church, by E. Wells, deserves remark. In the lower department was an extensive and most valuable collection of medals and insects, by Mr. John Gray.

WAGES AND STRIKES.

Padiham.—The cotton twisters and drawers of this place recently held an adjourned meeting, for the purpose of considering the refusal of the masters to advance their present rate of wages, according to a request sent in about a fortnight ago, when a resolution was unanimously carried that fourteen days' notice to leave be given to their employers, and at the expiration of that time to strike work if their demands are not complied with.

Todmorden.—The cordwainers belonging to the Amalgamated Society have, on application to the masters, received an advance of wages.

The Cotton Trade at Ashton and District.—Several mills in Ashton, Stalybridge, Mossley, Hyde, Dukinfield, and surrounding places, are about to recommence working full time. Some of them have been only partially worked, whilst others have been totally closed, since the commencement of the American war. There is a difficulty about the hands; owing to the scarcity of cotton operatives already in these districts, a demand for several thousand additional hands will be a call not easily complied with. Wages are rising rapidly, and partial turn-outs are taking place every day for higher wages.

Cheltenham.—The carpenters, joiners, bricklayers, and plasterers in the employ of several builders in this town have recently turned out. The carpenters on strike number about 150. The rate of wages paid to the carpenters and joiners varied from 3s. 6d. to 3s. 8d. per day, and they now demand a uniform wage at the rate of 4s., to work from six to six every day but Saturday, when they would leave off at two o'clock. The strike is not expected to be a protracted one.

Shipley.—The journeymen shoemakers at Shipley are making an effort to obtain an advance in their wages. It is said that this class of artisans, at the present prices, cannot earn more than 16s. a week, and for this sum they have to work very long hours.

Leeds.—At a recent meeting of the Carpet Manufacturers' Association, held at Leeds, it was decided to advance the rate of wages paid to workmen, as follows: Four-fourths super, 10 per cent.; Dutch, 20 per cent.; and the remainder kinds 10 per cent., excepting square and beam rugs. The advance will take effect from June 1st, subject to Scotch masters paying after the same rate from December 1st, failing which the old prices will be resumed. At a meeting of carpet weavers held at Heckmondwike, it was unanimously resolved, "That while this meeting views with the greatest pleasure the success of our efforts for an advance of wages, we also recognise the conditions on which that advance is granted, and determine by our individual efforts to do all we can by moral and legitimate efforts to advise the masters of Scotland to give an advance of wages equal to that just promised by the English manufacturers." Also, "That this meeting being satisfied that the masters have acted wisely by resolving to open their premises for work from 6 a.m. till 6 p.m., we do hereby pledge ourselves to support them in their efforts to carry out the same."

Staveley.—On the 30th ult. a meeting of miners was held at Staveley, to encourage the formation of a miners' union throughout Derbyshire, and to receive an appeal for assistance from the filemakers in Sheffield thrown out of employment by the lock-out or strike. There were about 200 miners present. Mr. Edwards, agent to the Miners' Union, took the chair; and the meeting was addressed by Mr. Edwards and by a deputation from Sheffield. The chairman denounced the hours of work for miners as too long, and complained of the weighing and butty systems. He also condemned the practice of allowing boys of tender age to work in the pits, and urged the miners present to combine into a union, holding out as an inducement that they would be able to secure for themselves 7s. per day, with only seven hours' work. Mr. John Fitzgeorge, secretary to the hardeners' branch of the Sheffield file trade, next addressed the meeting. Mr. C. Bagshaw, chairman of the Associated Trades' Union, followed in a fluent and effective speech, after which the meeting came to a close.

Burslem.—The labourers and bricklayers of this town have asked for an increase of wages, and it is generally understood that they will strike until the masters agree to pay the advances asked for. The labourers demand 18s. per week; but the masters decline to give it, and offer them 17s. per week, with a diminution of two hours in time. The bricklayers ask for the weekly wages of 29s.; this the masters also decline to give, and propose 28s. 6d. per week, with the same diminution in time as above. Notices have been issued by the master builders, from which it appears that they are determined to abide by their offers in each case.

Huddersfield.—Notice has been given by the plasterers of their intention to cease work if their employers do not grant them a rise of 2s. a week wages, and a reduction of two hours a week in labour. They now work fifty-four hours, and want to work fifty-two, and to have 26s. instead of 24s. a week. The masters have offered to concede the reduction in the time, but not the advance of wages.

Birmingham.—A meeting of outworking journeymen tailors was recently held in this town. The chairman, in the course of his address, stated that, with respect to the present application for an advance in prices, the masters generally were willing to concede a rise, and the only difference now was, as regarded matters of detail, and particularly as to how far the advance should extend. Several of those present spoke during the evening, and the general opinion was, the dispute should be settled amicably, and a strike avoided if possible. At a meeting of the master tailors, it was proposed and carried unanimously, "That the advance desired by their journeymen of 3s. per week should be acceded to.——A few evenings since there was a general meeting in the Town Hall of the master builders, operative bricklayers, carpenters and joiners, and labourers, "for the purpose of appointing delegates to act as arbitrators under the provisions of the existing trade rules," when a resolution to the following effect was unanimously carried: "That we, the master builders, operative bricklayers, carpenters and joiners, and labourers of Birmingham, do mutually agree to abide by and conform to all trade regulations which shall be made and agreed to by the delegates we are about to appoint, or which shall be settled by the casting vote of the chairman they may appoint."

Blackburn.—An address to their employers has been issued by the twisters and drawers of this town, setting forth their claims to an advance of wages. On the 26th ult. a public meeting of the drawers and twisters was held, for the purpose of hearing the result of the address. It was stated that no satisfactory answer had been re-

ceived. A deputation was appointed to wait upon the committee of the Blackburn Manufacturers' Association, whenever it may be convenient for the interview to take place.

Sheffield.—The bricklayers' labourers here have published a letter, in which they state:—"The demand of the masons and bricklayers to cease work on Saturdays at one o'clock, and for 2s. per week in advance of their usual rate of wages, has been freely complied with by the master builders of Sheffield; and now we, the labourers, consider that our demand of 1s. per week in advance is in no way extravagant. When the masons and bricklayers have got a rise of 2s. per week, we are at least entitled to 1s., as the heavy part of the work has to be performed by the labourers."——Nothing decisive has yet been done to bring the dispute in the file trade to an end. The question of arbitration as a means of settlement has been discussed by both sides, but there appears to be great difficulty in agreeing to the terms upon which the arbitration shall take place. It is considered highly probable that the Associated Trades will recommend the men to submit to the introduction of machinery on the understanding that they be allowed to work it; and if that be done, and the masters agree to the condition, there is a probability of the remaining question in dispute being amicably arbitrated, and the strike settled.

The Weavers' Dispute at Barnsley.—A dispute between Messrs. Harvey and Co., linen manufacturers, and their workpeople still continues, with no signs of an abatement. They asked for an advance of 10 per cent., which being refused, the weavers, as their work is completed, cease to work for the firm.

Folkestone.—The carpenters and joiners in the employ of one of the leading firms here having struck for an advance of 6d. per day, a general lock-out has taken place.

The Northern Ship-yards.—The strike among the men connected with the iron shipbuilding yards on the Tees, for the reduction of their ordinary day's work to nine hours, seems to be no nearer a settlement, as the masters decline to make any more concessions. The same observations apply to the ship-joiners, who are also in strike on the Tyne.

Middlesborough.—The joiners and painters are on strike here, and the workmen employed at the rail mill of the Consett Iron-works still remain out.

Monmouth.—The carpenters and joiners of this place have asked for an advance of 6d. per day.

Hartlepool.—The journeymen sail-makers of this neighbourhood have given to their employers a notice to the effect that they desire to work from six in the morning to five in the afternoon five days in the week, and to four on Saturdays. The difference between the present time and that asked for is two hours and a half.

Whitburn.—The shoemakers have recently obtained a considerable advance upon their wages without having made a formal demand for it. No strike or unseemly agitation was at all required, the masters having voluntarily proffered the rise in question. The rise obtained is from 4d. to 6d. on men's boots and shoes, and from 2d. to 3d. on women's.

Worcester.—Messrs. Henderson and Co., carpet manufacturers, have agreed to make an advance of ten per cent. from the 1st of June next, which will add rather more than 2s. per week to the present wages of the hand-loom weavers employed by them.

Airdrie.—At a recent meeting of operative bakers, a deputation was appointed to wait upon the employers, for the purpose of soliciting an advance of wages, and a limitation of the hours of labour. We understand the masters have not conceded the demand, and the men have determined to strike unless it be complied with.

Accrington.—Most of the manufacturers here have added five per cent. to the wages of their hands, and some have exceeded that amount; but the average throughout the district will be at least five per cent.

Durham.—The journeymen joiners of this city lately held a meeting to consider the propriety of asking for increased wages and shorter hours of labour, when it was decided that an advance from 26s. to 28s. per week should be asked for, and that work should cease at five o'clock on week days, and four on Saturdays. A deputation was appointed to lay the resolutions before the masters, who, however, refused to grant the demands of the men. The men accordingly struck work. A meeting of masters was subsequently held, when they agreed to pay the men by the hour instead of by the day. This offer was rejected by the men; but at another meeting of masters held, it was agreed to give the 2s. advance demanded, it being at the same time decided the question respecting the nine hours' movement should remain in abeyance until some general determination had been arrived at in the neighbouring towns. The men readily accepted this offer, and speedily recommenced work.

Carlisle.—The joiners, carpenters, and cabinet-makers, are out on strike for an advance of wages to the extent of 3s. a week. The marble masons employed by Messrs. Nelson and Sons, in the same city, have likewise struck work upon a demand for the shortening of hours being refused. The stonemasons are also making a movement for a reduction in the hours of labour to the extent of two hours and a half a week, coupled with an increase of wages by 2s. a week. The bricklayers' labourers have also demanded increased wages. The boot and shoe makers have also solicited an addition of sixteen per cent. to their present wages.

EMIGRATION.

Canada.—The correspondent of the *Times*, writing from Canada, says:—"The truth is (as I hope to show more fully in a subsequent letter), the present position of the province with regard to the United States is vastly different from that which it occupied before the war. Then Canada paid taxes and duties, and the Americans paid none. Labour found a good market in the States, and prices were low. Now this is all completely reversed. It is Canada which holds out every inducement to emigrants. The taxation amounts to no more than 1 dol. 85c. a head throughout the province—say 7s. 6d. It is difficult to find out exactly what the precise amount is in the United States, but certainly it is not less than 11 dols. a head, or about £2 5s. 8d. At the present moment, as I have before mentioned, gold is only at 127, and prices in New York are nearly thrice as high as when gold was at 260; the difference to men of fixed incomes may be imagined. The cheapness of living and clothing and every article of common life here is absurd after an experience of the prices in the States. Better beef can be bought in the market here for 10c. a pound than in New York for 30c. A turkey can be got for a dollar, which, in New York, would cost five or six. Without attempting in this letter to go more fully into the difference, it may safely be said that prices here are from half to two-thirds lower than in any part of the United States. A man lives comfortably in a Canadian city on 1,000 dols. a year, where, in New York, or any of the cities, even so far out as Chicago, it would cost him 3,000 dols. In New York, a suit of clothes, of outlandish and barbaric fashion, costs 100 dols. in greenbacks (say, at the current rate of exchange, £17 10s.). A better article may be had anywhere in Canada for £5 or £6. It is the same with everything. Now, under these circumstances there is no temptation for the Canadians to go over to the United States; all the inducements are the other way. They are not craving to have a share of the United States' debt put on their shoulders, nor are they anxious to pay American prices for household necessities. The fact is, that emigration from the United States is actually setting in to Canada, and in a few years this country will probably occupy a position which will relieve England from any anxiety with regard to it, and render it one of our most powerful dependencies. The Canadians are now deriving substantial advantages from being under the British flag, and they know it, and hence, perhaps—self-interest being a powerful motive—some of the enthusiasm of their loyalty."

South Australia.—According to the latest accounts, the large supply of labour which is now arriving has not yet caused inconvenience, though the immigration agent of Port Adelaide reports that "in the ships which have arrived during the last quarter there has been too large a proportion of miners, and there is at present great difficulty in finding them employment." He also states that, "although there is a demand for agricultural and other classes of unskilled labourers, there is considerable difficulty in finding employment for those who are married, having families of young children, the support of whom directly or indirectly falls on the employers—a burden more especially felt when the price of food, as at present, is unusually high. This objection will not hold good in the same degree with mechanics and other classes of skilled labour."

The Labour Market in New South Wales (Jan. 19, 1865).—In Sydney the market is well supplied with almost every description of labour, both skilled and of an ordinary character. There is also a considerable number of educated persons seeking employment as clerks, bookkeepers, tutors, governesses, &c. The rate of wages is as follows:—With board and lodgings or hut-room and rations—blacksmiths and carpenters, £50 to £70 per annum; married domestics and farm servants, £45 to £50 ditto; grooms, coachmen, and gardeners, £35 to £45 ditto; farm and garden labourers, £30 to £35 ditto; surveyors' men and ploughmen, £30 to £35 ditto; bushmen and rough carpenters, £35 to £40 ditto; porters and butlers, £30 to £40 ditto; shepherds and stockmen, £25 to £35 ditto; families, shepherding from two to four flocks, £45 to £70 ditto; housemaids and nurses, £15 to £20 ditto; general servants, £18 to £26; cooks and laundresses, £26 to £30 ditto.

ART PRIZES.

Society of Arts' Prizes for 1866-7.—The council have decided to enlarge the basis on which artisans may compete for prizes for art workmanship, and have passed the following resolutions:—Any producer will be at liberty to exhibit, either in his own name, or through his workmen, any work or works as specimens of good workmanship in the classes given below, provided that the work or works be accompanied with a statement of the name or names of the artisans who have executed their respective portions; and if the work or works be sufficiently meritorious to deserve them, extra prizes will be given to the artisans who have executed them.

Artisans may, if they think fit, exhibit works executed by them after other designs, in any of the below-mentioned classes. Such works may or may not contain the whole or portions of the prescribed designs, but must be of a similar style and character. Competitors must specify the class in which they exhibit. Extra prizes will be awarded.

The work submitted must be delivered at the society's house on or before the 22nd December, and will be exhibited at the society's house, and afterwards at the South Kensington Museum. A selection of the best works will be made and sent to the Paris Exhibition of 1867.

The classes will be as follows:—

FIRST DIVISION.

Works to be Executed from Prescribed Designs.

Class 1. Carving in Marble, Stone, or Wood.
Class 2. Repoussé Work in any Metal.
Class 3. Hammered Work, in Iron, Brass, or Copper.
Class 4. Carving in Ivory.
Class 5. Chasing in Bronze.
Class 6. Etching and Engraving on Metal—Niello Work.
Class 7. Enamel Painting—on Copper or Gold.
Class 8. Painting on Porcelain.
Class 9. Decorative Painting.
Class 10. Inlays in Wood (Marquetry or Buhl), Ivory, or Metal.
Class 11. Cameo Cutting.
Class 12. Engraving on Glass.
Class 13. Wall Mosaics.
Class 14. Gem Engraving.
Class 15. Die Sinking.
Class 16. Glass Blowing.
Class 17. Bookbinding and Leather Work.
Class 18. Embroidery.
Class 19. Illuminating.

SECOND DIVISION.

Works to be Executed Without Prescribed Designs.

Class 20. Modelling.
Class 21. Wood Carving.

Except in classes 1, 2, and 4, the subjects will remain as in the list already issued; but in classes 1, 2, and 4, other subjects will be given, particulars of which will be duly announced.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE WORKING CLASSES AND THE REFORM BILL.

To the Editor of the Working Man.

Sir,—I derive weekly great pleasure from the perusal of the excellent and varied contents of the Working Man. I think its introduction was well-timed, as it supplies an acknowledged and long-felt want. I read Mr. Clay's able speech on his introducing "A Bill to extend the Elective Franchise in England and Wales," and the opinion I formed of the Bill, from what I could learn from his speech, was, that as a means of extending the present limited franchise, it was worthy of the support of those who were willing to compete for the honour of being placed on the electoral roll as educated voters. I read the article on "Opinions Wanted in Parliament," and I intended to have written a short answer to that appeal, but, my spare time being fully employed in the temperance reform and other social and progressive movements, I had not an opportunity. I, nevertheless, did not forget the matter, but scanned your issues with much interest to learn the opinions of my fellow-workmen. The answers in No. 12 seemed to me to be somewhat wide of the mark, and the writers appeared to have the idea that Mr. Clay intended to substitute his method for those already in existence. I was much surprised at the communication of Mr. Glazier, as I am aware he is a man who possesses more than the average intelligence, and has been a successful competitor upon a question closely connected with the one before us. He seemed to me to have got by rote the stock arguments of those who oppose an extension of the suffrage, and to have reiterated them, as though they were in every respect just and true. I have heard in discussion-rooms and similar places such arguments as your correspondents use. I am well aware of the difficulties the workman has to contend with in acquiring a small amount of knowledge. Millions of my fellow-workmen have had to toil long hours almost from infancy, without books or schoolmaster, and no one to inform them of the pleasures and beauties of learning, or the advantages which knowledge confers. The greater portion of those who went to the village schools thirty years ago were, like myself, never taught a single sentence of grammar, or saw a work on constitutional or general history. It thus appears to me the writer takes a low estimate of working men, without considering the causes which produce their seeming want of intelligence, and advocates non-enfranchisement until the workman possesses his standard of excellence. I, sir, in opposition to the writer, contend for manhood suffrage as manhood's right, and its exercise as manhood's duty. Exclusiveness is the Englishman's bane. It has produced class-legislation, and brought innumerable evils upon the community; it is the main support of ignorance and the other evils its apologists charge the people with; it has prevented education—more especially political education—and has been the cause of men not assuming the rights of citizenship and performing the duties connected with it. And it is a natural sequence that the people should be deficient of that knowledge which, the writer states, not even the middle classes possess.

The writer further states that "the exercise of the

elective franchise is a solemn and responsible duty, and can only be rightly exercised by those who have a knowledge of the responsibilities." Very good advice; but who are to be the teachers? Not Locke, I suppose, because, if we are to believe the Tories, he was refuted long ago. Not Lord Russell—his "Constitutional History" has received at their hands the like defeat. It must not be Bentham or Spencer, or writers of that school, as the perusal of their writings by the working classes would be outrageous, as they are, of course, reserved for the educated classes. It is not the writings of that eminent man, J. S. Mill, because, if half what was said of his works by the Tory prints during his candidature for Westminster be true, he is little less than Satan himself. It cannot be the Tories—or, as they are pleased to call themselves, the Constitutionalists—because Mr. Disraeli informs us in his "Life of Lord George Bentinck" that the "Tories are always ten years behind," and the workman's educated friends would not wish him to be so far back as that. It cannot be the late Archbishop Whately, as he states, "The 'House of Commons' [or 'Lower House'] consists of the 'representatives' of the people; that is, persons elected by them to take care of their interests" ("Lessons on the British Constitution," p. 42). Now, that principle is totally at variance with the present state of the House of Commons. The people are not represented there, as may be seen by the present condition of their dwellings in the metropolis. The people feel that at present Government does not exist for them—that they have but little share in its results—that their petitions are unheard, or, as the common expression is, they are thrown under the table. It is a well-known fact that the working man who studies the history and constitution of his country, and who interests himself in political matters, and is able to expose the anomalies of the present system, is no favourite of the upper classes. He is looked upon with suspicion, and is caricatured by *Punch*, and is charged with setting class against class; and the idea of the workman's children being taught political knowledge under the present educational system is to me one of the drollest imaginable. At present, in almost every educational and social institute, politics are forbidden topics; and I have more than once been sorry to see the almost pious horror which some of those who pretend to take great interest in my class profess to feel at the bare idea of politics being introduced.

I cannot understand how, in the face of such testimony as the late election brought forth, men can be found who will still ignore the just claims of their class to a voice in the choosing of representatives, who impose taxes they are called upon to pay and pass laws which they are bound to obey. It seems to me that legislation of that description is grossly tyrannical, and an injustice which outrages that religion they profess to be guided by.

Professor Fawcett bore testimony to the honesty and consistency of the working men of Brighton. Mr. Hughes and others could have added the same testimony for their constituencies; and would, I believe, from their knowledge of our class, bear witness that all we require is justice. Sir J. P. Kay Shuttleworth, in an address at the Kendal Working Men's Club, said that the working men were more advanced in economic science than the upper classes, and that, under an extended suffrage, they would form a sound system of sanitation and education. In conclusion I may state that, as manhood suffrage is not likely to be granted for a long period, Mr. Clay's proposal might be incorporated with the Government Reform Bill. But I believe no system of government will ever be satisfactory but that which rests its power upon the whole people. Every man would then feel that he had a duty to perform, and would fit himself for it. Liberty would no longer be an unmeaning name. Every man would be, under such a system, attached to his country—would obey her laws and honour the institutions, and protect them to the utmost of his power. Englishmen could not then feel as I felt on passing the polling booth at the late election whilst some of my countrymen were performing the duties of citizenship. I, although born in England of English parents, was an alien. To me the election was a mere farce; and I felt that, in spite of the English boast of liberty, millions of my fellow-men were, like myself, not free, and were, to all intents and purposes, political serfs—degraded as men. And, musing thus, I determined there was a work to do; and I know, in spite of anything said to the contrary, that there is a stern determination on the part of the unenfranchised to work earnestly until political serfdom is totally abolished, and every Englishman is a free man.—I am, Sir, &c., H. Randall, Joiner.

To the Editor of the Working Man.

Sir,—Would you allow me, through the medium of your valuable periodical, to make a few remarks upon the Reform Bill which is now before the country? The object of the Bill is to enfranchise 400,000 of the working classes, and to give to them a fair share in the representation of the country; and, sir, when we consider that all matters which are intended for the popular benefit are carried by majority, I do not think, when we ask that the great majority of the nation should have some voice in the administration of its affairs, that we ask for anything which we are not legally, morally, and equitably entitled to receive. But, looking at this matter in another light, I think you will agree with me in saying that we have a right to the franchise. At municipal elections, which, directly, are of much more vital importance to us, very little is said with regard to the ineligibility of the working class, which, in that instance also, is generally by far the more numerous class. If they can exercise wisdom and discretion sufficiently to enable them to record their votes in favour of a town councillor, they can also, with equal discretion, act their part in the return of a member who shall advocate and represent their interests within the walls of St. Stephen's. So far as the Bill itself is concerned, I do not think myself that it is such a liberal instalment as the voice of the populace has demanded; but, placing their interests in the hands of that great statesman, Mr. Gladstone, they are willing and ready to accept it as an earnest of his attachment to the working classes, and of his advocacy of the rights of the people. The working men of England must, ere this, have become fully convinced that in Mr. Gladstone they have a man who holds very high opinions of their class, and who considers them to be, not what Lord R. Montagu would have us believe they are; but, on the contrary, is of opinion, "if working men were admitted to that House, they would set an example of good breeding which the noble lord would do well to imitate," for "the people who would be admitted to the franchise were our fellow-subjects, fellow-Christians, and our own flesh and blood, whom they had hauled to the skies for their good conduct—men whom they had seen bear destitution, almost starvation, with a patience which was a lesson to all." This statement, coming as it does from the greatest statesman and most accomplished orator of his time, cannot pass by without convincing every working man in this country that they have in Mr. Gladstone a true advocate of their interests. But this is not the first act which he has played on the stage of time for the purpose of doing good to the English workman. The partial repeal of the tea and sugar duties was a great boon; and the repeal of the paper duty must also be deemed as a step which has effected a vast amount of good in the country. By repealing the very obnoxious tax upon knowledge he has been the means of diffusing through the press cheap and sound literature to the working classes, with the object, no doubt, of making them more intellectually entitled to the franchise; and now, after three or four years have passed away, he brings forward a measure which he, as well as his colleagues, consider a sufficiently liberal instalment for the present time. It is to be hoped, therefore, that the working men of England, by the exercise of the interest with which they are associated with the subject of Reform, will give decisive proof of their determination to demand a share in the representation of the country, and the result will be that skulkers will be found on the right side of the House, and the question decided by the admission of 400,000 of their class to the right which belongs to every man.

Trusting that you will find a spare corner for the enclosed, I remain, your obedient servant,

Chester, April 2, 1866. Maurice Jones.

To the Editor of the Working Man.

Sir,—It has been said many times by some of the greatest statesmen of the present time—men of different political opinions—that the working men of this country have now attained to a state of intelligence which fits them for the franchise; but the method by which they judge of the intelligence of the working class is false. To suppose a man intelligent because he happens to live in a house of the value of £7 a year, is erroneous. To judge of a man's intelligence, he must be questioned, and the answers which he may give will decide the question. The present Government see it in no other aspect than that of pounds, shillings, and pence, which, I think, is a very clumsy way of judging the fitness of working men for the franchise. They tell us that the franchise is a most solemn trust, and not a right, and that they ought to be very mindful in conferring it, lest the privilege should be abused and the State ruined; but, by their mode of giving it, they cannot tell whether the person to whom they give it be intelligent or ignorant, sober or intemperate, good or bad.

There are now two Bills in the House of Commons to amend the representation of the people—the Bill of the Government and the Bill of Mr. Clay. The difference between them is very great, and deserves the most calm and serious consideration of every working man. The Government Bill is complicated in its details, and difficult to understand. Not one working man in ten can comprehend it, and even editors of newspapers differ as to its meaning. Mr. Clay's Bill is simple and easy to understand. It contains the germ from which would spring a great deal of good, if it should be passed into law. It would place the franchise within the reach of all sober, industrious, intelligent working men; and those who do not now possess the necessary amount of knowledge, under the provision of the Bill, to qualify them for the franchise, would be stimulated to greater exertions, in order to attain the requisite knowledge.

I believe it would be a very hard task for a working man turned thirty years of age to learn to read, write, and to work the first four rules of arithmetic. Considering the time he has to spare, and the circumstances in which he is placed, it would require great mental application on his part, though the subjects are in themselves simple and easy. To possess the franchise, on such conditions as are specified in Mr. Clay's Bill, would be worth all the labour and trouble to obtain it. If working men could be admitted within the pale of the constitution by qualifying themselves mentally, a good effect would be produced in their minds, and a step would be taken in the path of real progress. The institutions of our country would be strengthened, and the throne more secure. The fears of the aristocracy that everything would be turned upside down would cease; the question of the franchise would be settled; all clamour and political agitation about it would be at an end, and peace and harmony prevail throughout the land.—Yours respectfully,

A Hard-working Blacksmith.

To the Editor of the Working Man.

Sir,—I feel thankful to see so many thoughtful, intelligent, and well-meaning working men responding to the call made upon them, to give expression to their views upon various important subjects, and especially upon the very great subject of Educational Franchise. Many thanks to Mr. Clay for bringing forward his Bill; though I think sound objection can be urged against some portions of it. I am exceedingly pleased with the letters inserted in No. 12 upon the subject. They have led me to a conclusion in my own mind that if a few pamphlets were drawn up upon the necessity that exists for National Government—the election of a Government, and its prime duties; the class of men who ought to be elected by those who are privileged and have a right to be called upon to elect the men; the very great responsibility resting upon them in the discharge of the important duty devolving upon them; the sacredness of the franchise or vote, which makes them belong to that important portion of the people of every kingdom or state upon earth commonly called citizens—such pamphlets would do an immense political good, and would strengthen the hands of those who would like to see more intelligence and independent action brought to bear upon the election of men who are to discharge the important duties of legislators. I feel sure they would have a very large sale, and that every one of your subscribers to the Working Man would push their sale with all possible energy, well knowing that they must produce great national good.—I remain, Sir, yours, &c., W. Clarke.

4, Dennet Street, Sneaton, near Nottingham.

THE AMERICAN EMIGRANT ASSOCIATION.

To the Editor of the Working Man.

Sir,—As I perceive that you devote part of the space of your ably-conducted paper to the important subject of emigration, I trust you will allow me to call your attention to the existence of an association, the want of which has long been felt by thousands of emigrants. Its main objects are to disseminate information among the workmen of Europe respecting the labour market of America; the wages obtained there; the class of workman required—here the farm labourer or miner, there the skilled worker in metals, wool, or cotton; information respecting climate, soil, and cost of land. In these and other matters this company proposes to become an efficient guide and valuable friend to the emigrant workman. This association, which is styled "The American Emigrant Company," has its head-quarters in New York; but the British agency is under the control of Mr. Williams, of Drury Lane, Liverpool. I learn from a periodical issued by the company that among its managers and patrons are several New York bankers, and Rev. Henry Ward Beecher and other clergymen; and among its references in this country are George Peabody and Thos. T. Potter, M.P.

One of the great advantages that the company offer is that the emigrant may learn in what part of the New World there is a demand for his kind of labour, and where the market is already well supplied, and this without any charge. The company also offers to farmers and others disposed to the life of an agriculturist eighty or 160 acres of freehold land, part of it ready ploughed, with a house, tools, seeds, and a flock of sheep, on terms of easy payment extending over a number of years.

I believe it is the custom for employers of labour who are in want of British artisans to make direct application to this association; and, by this means, in many cases, the emigrant can be engaged for a term before he leaves home, and in some cases his passage money is advanced. R.

TO CORRESPONDENTS.

O. E. G.—If a property be really good, it would be a credit to compass its success by a Co-operative Company if it had failed in private hands. But if this failure damaged its prospects commercially, that would be an objection to it.

J. M. desires to know if there is a machine that would *dade*, quickly and correctly, hair in quantities for fishlines; and, also, a machine to twist and plait the same.

Pengwern.—We find ourselves unable to comply with your request, which is certainly not a very reasonable one.

R. J. Deepel.—The lines forwarded by you are full of spirit, but having been previously published in a separate form, we are unable to avail ourselves of your offer.

A Carpenter.—Yes; under the circumstances mentioned you could obtain a patent, but is the invention really worth the trouble and expense?

C. B. wishes to ascertain if there are any knitting-looms or machines adapted for domestic use, and where they may be obtained.

T. James.—Prussiate of potash answers very well for case-hardening small steel articles; but, for large articles, preference is given to bone-dust, pieces of hoofs, and leather.

Lux.—We do not see that your questions have any practical bearing. Steel, of course, is the recognised metal for cutting purposes, and is not likely to be superseded, whatever properties of hardness any alloy may possess.

S. M.—The money would be quite safe in a Post Office Savings Bank. We do not recommend it to be placed in any private bank.

Ripley, J.—Steel is inlaid with gold and silver wire by cutting the grooves in the steel before it is hardened, then beating in the wires. Metal ornamenters cut a peculiar slanting groove in the steel to receive the precious metal, which cannot afterwards be drawn out.

Atkins.—Plumber's solder is composed of one part tin and two parts lead.

Burnet, J.—The varnish on enamelled leather is composed mainly of drying linseed oil, usually mixed with lamp-black, to give it body, or with Paris white and coloured pigments. After this mixture is laid on, it is dried slowly in an oven. Several coats and successive polishings with pumice-stone are necessary to render it smooth.

T. E. D.—The haddock and herring will keep good any reasonable time, if sufficiently salted. Finnon haddock to be consumed within four or five days are salted for four or five hours, and smoked with peat smoke for the same length of time. Yarmouth bloaters are salted for a week or so, and smoked to a fine golden yellow colour in three weeks.

THE LONDON CENTRAL

Painters' Hall Company,

LIMITED.

Incorporated under "The Companies Act, 1862," whereby the Liability of each Shareholder is limited to the amount of his Shares; and no Shareholder will be allowed to take more than Ten Shares.

CAPITAL, £2,000, IN 2,000 SHARES OF £1 EACH,

WITH POWER OF INCREASE.

Deposit on Application, 2s. 6d. per Share, and 2s. 6d. on Allotment. No Call will exceed 2s. 6d. per Share, or be made at less intervals than One Month.

Directors (pro tem.).

FREDERICK EMANS SHEARMAN.	WILLIAM MARKS.
GEORGE STONE.	JOHN JOSEPH PADDICK.
WILLIAM PRIME.	WILLIAM THORNE.
WILLIAM GARAGAN.	HENRY STOCKBRIDGE.
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	WILLIAM STAINSBY.

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Solicitor.

Secretary (pro tem.).

WILLIAM HENRY TOFTS.

Temporary Office.

39, UPPER JOHN STREET, FITZROY SQUARE.

OFFICE HOURS: 7 to 9 P.M.; Saturdays, 3 to 5 P.M.

This Company is established for the purpose of Leasing or Building a Painters' Trades Hall, Library, and Reading Room, for the use of Trade, Benefit, and other Societies.

PROSPECTUS.

Seeing the great evil of having our meetings at public-houses, and the necessity of improving our condition, both morally and socially—conscious of the difficulties and failures that have attended all former efforts in this direction—we have taken a broader basis as the foundation of our work, and a fixed determination that no effort shall be wanting on our part to ensure its success.

To remove the existing evils of public-house meetings, the London Central Painters' Society members have formed a Company, on the principle of limited liability, for the purpose of leasing or building a hall in a central part of London, such building to consist of a hall capable of holding 1,000 persons seated, library, and reading-room, with large rooms for the use of various societies to hold their meetings in, with committee and refreshment rooms attached, lavatories, &c.

The calls are made easy, to enable working men to take up shares. All are invited to co-operate in the scheme; and, to prevent monopoly, no shareholder will be allowed more than ten shares.

The promoters of the Company are, on allotment, to receive the money outlaid for the promotion of the Company, and no further remuneration until 10 per cent. has been divided amongst the shareholders; any profit over and above this rate to be divided amongst the shareholders and promoters, in proportion of two-thirds to the shareholders and one-third to the promoters.

For the many benefits it will confer upon them, it behoves the working classes generally to devote their entire energy to its advancement, and take every opportunity of making it known and appreciated; as we advance in years, numbers, and intelligence, great and numerous will be the advantages which those who come after us may acquire through our earlier exertions.

The promoters, in bringing this scheme before the working classes, feel the greatest confidence that, if supported by those it is intended to benefit, it will prove one of the greatest advancements of the age, both morally, socially, and financially, and will ultimately produce a large dividend to the shareholders.

FORM OF APPLICATION FOR SHARES.

To be retained by the Bankers of the Company.

No.

To the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED.

GENTLEMEN,—I have paid to your credit at your Bankers the sum of £ , being a deposit of 2s. 6d. per share on shares in the above Company in respect of such shares, or in respect of any less number you may allot me, and I agree to pay the further sum of 2s. 6d. on allotment thereof, and the instalments according to the terms of the Prospectus.

Name in full,

Residence,

Profession or Trade,

Dated this day of 186

If it is not convenient to make the deposit with the Bankers of the Company, the form may be sent by post to the Office of the Company, accompanied by a Crossed Cheque or Post Office Order for amount of the deposit, which will be paid into the Company's Bankers, and the Receipt returned by post to the Applicant.

BANKERS' RECEIPT.

To be signed by the Bankers and returned to the Applicant.

Received this day of 186 , of for the Directors of the LONDON CENTRAL PAINTERS' HALL COMPANY, LIMITED, the Sum of on account of an application for an allotment of Shares in the undertaking.

£ : :

William Chambers, Heraldic Chaser and Embosser, 4, FOLEY STREET, PORTLAND PLACE, W.

Honourable Mention, Great Exhibition, 1851; Honourable Mention, 1853, New York.

University College, London. —SUMMER COURSE of CHEMISTRY (Theoretical and Practical, including the subjects of the Matriculation Examination of the University of London). Professor WILLIAMSON, F.R.S., assisted by Mr. C. H. Gill, F.C.S.

This course will consist of about forty lessons, commencing on WEDNESDAY, April 11, at 11 a.m.

Fee for the class, £4, including cost of materials and apparatus.

AUG. DE MORGAN,
Dean of the Faculty of Arts.
CHAS. C. ATKINSON,
Secretary to the Council.

Feb. 8, 1866.

Albert Veterinary College (Limited), Queen's Road, Bayswater. Professor John Gamjee, Principal. Subscribers' fee, £2 2s.; Tradesman's, £1 1s. per annum.

A Quarter of a Million has been paid as Compensation for Accidents of all kinds, by the RAILWAY PASSENGERS' ASSURANCE COMPANY. An annual payment of £3 to £6 5s. secures £1,000 in case of death, or £6 per week while laid up by injury.

WILLIAM J. VIAN, Secretary.

Offices—64, Cornhill, and 10, Regent Street.

The National Standard Life INSURANCE COMPANY (LIMITED).
22, MOORGATE STREET, E.C.

General Manager:
R. R. HUTCHINSON, F.R.G.S., F.A.S.L.

POLICIES ABSOLUTELY INDISPUTABLE AND INDEFEASIBLE.

Part of Claims paid on notification of death, and balance within one month after proof of death. No Extra Charge for Policy Stamps or Policies.

Agents Wanted. Apply to Chief Office.

Alliance Assurance Company.
Head Office, 1, Bartholomew Lane, Bank.

Subscribed capital	£5,000,000
Paid-up capital	550,000
Invested funds, upwards of	1,500,000
Annual income, upwards of	270,000

Fire business at home and abroad.

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1861	360,120	135,874	1,311,905
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THE

WORKING MAN:

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INTERIOR OF A LONDON BAKEHOUSE.

London Bakers and Bakehouses.

MUCH has recently been said respecting the condition of the London bakers, the unhealthy character of their employment, and their deprival of many of the opportunities of recreation and intellectual improvement possessed by most working people. When a Government inquiry was instituted, some few years back, for the purpose of obtaining reliable information as to the actual condition of the men and boys employed in the baking trade, the evidence showed that numerous abuses existed, several of which were capable of being easily remedied, without the need of legislative interference. The principal evils complained of by the men were the excessively long hours of work, and the unhealthy character of the places in which the work was performed.

The period of labour was found to vary from twelve to eighteen hours, and, in some cases, even longer, the men scarcely having time to procure more than two or three hours' sleep at a time. Indeed, the greater portion of their lives might be said to have been passed in the bakehouse, which is often made to serve the purpose of workshop, living-room, and bedroom, all combined. There are many journeymen bakers who have scarcely ever known what it is to sleep in a bed. They have had to take their rest on the hard floor of the bakehouse, undeterred by the myriads of black-beetles and cockroaches crawling about in all directions. Many of this class of journeymen are natives of Germany, who have been attracted to this country in the hope of obtaining a higher rate of wages than was procurable in their own.

Various attempts have been made by the operative bakers to procure a reduction of their hours of labour, and the improvement of the places in which they are employed; yet, notwithstanding their powerful organisations, they have not been able, up to the present time, to accomplish their desired object. The interference of the Legislature has been sought and refused, on the ground that, were the Government to interfere, its aid for a similar purpose would be invoked in other trades, and there would be no knowing where to stop. The introduction of bread-making machinery, at one time, bade fair to open a chance of speedy improvement, but the hope has not been realised.

The sanitary condition of many of the London bakehouses is deplorably defective. Not a few are simply mere cellars, lighted with gas, and utterly devoid of anything like proper ventilation. The oven is placed at the back, and, but for the admittance of a little fresh air through the cellar grating, the atmosphere would be utterly unbearable. In summer it frequently is so. Existence in such dens can only be accomplished at the sacrifice of health and strength. Accordingly, we find the journeymen bakers, as a class, becoming decrepit and worn out before their proper time. Consumption and diseases of the lungs prevail to a frightful extent among them, and the spectacle of an aged journeyman baker is somewhat rare. Many of this class, when they find their health beginning to fail, exchange their occupation for some other, more healthy, although less remunerative; some, having saved the requisite funds, emigrate to the United States and other countries; while a few endeavour to set up in business for themselves. Scarcely any think of remaining in the trade all their lives. They know that it generally means disease, suffering, and premature death.

Yet why should this be? There is no need for the trade to be so disastrous in its effects upon the health and comfort of the workers. With properly constructed places of work, and reduced hours of labour, the occupation of the baker might be rendered as healthy as any in the whole range of productive industry, and this, too, without much, if any, appreciable sacrifice of profits on the part of the employer. To their honour be it said, there a few master bakers who have endeavoured to improve the condition of those in their employ. They have erected large, commodious, and well-ventilated bakehouses, in which the men are separated as much as possible from the neighbourhood of the oven, and where every mechanical appliance has been introduced for the purpose of lightening the amount of labour required. In these admirable establishments the night-work has been reduced to a minimum; and there is no reason why it should not be the same elsewhere. It is said that the demand for hot rolls in the morning is a valid reason why the journeyman baker is compelled to work such long hours as those of which he so bitterly complains; but the excuse seems very weak, especially when it has been emphatically asserted by various practical men that the morning supply of hot rolls can be produced without necessitating the employment of so large an amount of night-work.

But, after all, the real remedy lies with the public. They might, as in the case of the Early Closing Movement, powerfully assist the cause of the men by refusing to deal at those establishments where excessive hours of labour were insisted upon. There would, at first, be some show of opposition, and, perhaps, no little amount of grumbling; but the employers would be compelled to yield, and the men would gain a victory without having recourse to the dangerous expedient of a strike.

The Great Portrait Exhibition.

A new pleasure has been prepared for the residents of London and the visitors thereunto. We are glad to announce that the preliminaries are at last completed. We allude to the Exhibition of National Portraits, which has been provided at the instance of Lord Derby, who suggested that there should be made a collection of the most valuable historic portraits possessed by the country, in its ancient ancestral halls and public institutions. The result of the noble lord's advice is shown in this, the noblest collection of the kind that has ever been seen together in England, and as for that, in the world: comprising nearly 1,200 portraits, illustrating the very commencement of the art of portrait-painting in England, beginning with the Plantagenet reigns, and coming down to the year 1688. The place of the exhibition chosen is in the Exhibition Road, exactly opposite the Art-training Schools. The galleries devoted to the reception of these portraits are those occupied formerly as the Refreshment Rooms of the International Exhibition of 1862. These galleries, which are lighted from the Royal Horticultural Society's Gardens—that is, the windows look into that spacious area—are very extensive; yet, three tiers of floors are required to hold the whole of these pictures. Even then the wall space has had to be increased many times by dividing each gallery into eight or ten compartments, by the erection of high screens. By this arrangement the visitor does not see the large gallery at once filled with pictures; but a series of quiet, spacious compartments, each occupied by thirty or sixty pictures, according to their size.

The portraits are so tastefully arranged, and hung with so much judgment by Mr. Samuel Redgrave, and the gentlemen who act with him, that each of them can be seen in a pleasurable way, and studied with proper attention. When the Exhibition is crowded, as it will be when its interest is known, the throngs will never impede each other, as they do at the Royal Academy and other large rooms, but will be equalised and distributed in the different divisions.

There is also an interesting exhibition of another kind—namely, of Naval Architecture—opened in the same rooms, consisting of sea-pieces, paintings of the bodies or hulls of celebrated war ships, showing the different outlines and constructions adopted in the progress of ship-building; and splendid models of vessels of famous reputation. Among others, is a magnificent model, very large, and, probably, the finest ever built, of the *Northumberland*, the great iron-plated ship, which won't be launched, and, at the time of writing this, remains provokingly imbedded, half way between land and water.

Through this exhibition the visitor in search of portraits passes; but he finds no difficulty in discovering the continuation of the series of the pictures, for each one bears a neat and peculiar yellow label, distinctly visible at a great distance, bearing in it the name of the person or persons painted, the name of the painter, and the name of the lender—the Earl of Derby, Her Majesty, or whoever it may be—and also the number of the picture as it stands in the catalogue. The visitor, therefore, without a catalogue, or without any reference to it if he has one, can understand the chief facts of the portrait before him. This is a great advantage, and one never before afforded with the same degree of completeness in any previous exhibition. The catalogue itself is a model of perspicuous typographical arrangement and interesting description.

The galleries have not long been open for public inspection. The private view took place on the 14th inst., and the public opening two days afterwards, on the 16th; but by the courtesy of the Directors, the Press were afforded the opportunity of inspection during the week preceding the opening. The portraits are arranged chronologically. The first is Rosamond Clifford, lent by her Majesty. Excepting the names of Luca Cornelli, Petrus Christus, and Van Eyck, few names of painters occur between 1154 and 1502, when Hans Holbein, the great father of portraiture in this country, comes upon the field. When some of the Oxford University authorities first felt ambitious of having portraits of the founders of colleges, they employed a painter who, as he had no original to sit to him, and no sketches to guide him, did the best he could. He imagined their features, and, as nobody was living who ever knew them, nobody could dispute the fidelity of the portraits. An eminent art-critic has pointed out that many noblemen, when the taste for portraits set in, were in the habit of collecting them from foreign countries, or wherever they could obtain them. When these noblemen died their collections descended to their posterity, when the portraits came to be considered those of the ancestors of the family; and in this way numerous old portraits, interesting as works of art, but of entirely unknown authenticity, exist in ancient mansions.

To discover the actual painter of a picture is an affair of considerable ingenuity, research, and practical knowledge. Some painters, like Holbein, employed a peculiar background; others had a characteristic method of painting—mixing their colours in a peculiar way. In some countries a particular kind of wood was used for panels; in others, a peculiar sort of canvas. Even these materials differ in different periods. Some painters marked their works with initials or symbols. In the days of Horace Walpole, few of these points were understood or were investigated. During the last century all sorts of learned, curious, and experimental connoisseurs in art, and thoughtful, observing picture-restorers have amassed thousands of facts of the greatest interest. Mr. Scharf, Mr. Cunningham, Mr. Wornum, Sir Charles Eastlake, practical restorers and art writers, like the author of "Robert Dalby," have revised these accumulated observations; and now the authenticity and genuineness of old pictures can be determined with an accuracy unknown before. It is owing to these labours and criticism that the chronological arrangement of this gallery is possible. In cases in which the painter is doubtful, the visitor is informed; where a name is given it may be relied upon; so that the humblest visitor has the same satisfaction as the highest personage in the land in contemplating these portraits of persons famous in history either for their services or attainments. Of the interest attaching to this great collection we may speak on another occasion. Of all the works of art, portraits have the most personal interest. To see the lineaments of the men and women who people history, and who have made the world what it is, is one of the greatest of pleasures; and the public are indebted to Lord Derby, who suggested the exhibition, who is a liberal contributor to it, and whose influence has been exercised to induce the possessors of great works of art and interest to denude their mansions of their costliest attractions for the gratification of the public. In no other way could these treasures of portraiture ever be seen.

A visit to the National Portrait Exhibition will be classed among the recreations of working men during the present year.

*A Bit of Work-a-day Biography.**

How I got through the rest of the night, goodness only knows; but by the time it became daylight I found my way into Smithfield, for I felt as if I'd like to be near where my mother was lying. It was market morning, and I stood about, watching the cattle, and the dealers, and the drovers, till the hospital was opened. Then I went in among the patients who were waiting to see the doctors. One of 'em near the door was a big, well-built man, with a dirty, but cheery-looking face; he had his hand in a sling, and was talking to an old woman with a baby in her arms. Presently he beckoned me, and asked me some questions; and he spoke in such a fatherly manner that I soon told him all I knew about myself and my mother.

Now I come to think, you must ha' known Joe Stoker; he used to work for your people before he set up in a little way for himself in Cow Cross. Well, it was him, and he had met with an accident—hit his hand, maybe, instead o' the iron. The end of it was that he took me home, and for a year or so I worked the bellus all day, and went to a ragged school at night. After that he begun to teach me the trade, little by little, so that by the time I was fourteen I could do odd jobs and work at the anvil pretty well. But I never did take much to books, and they used to tell me I should never be a credit to the school, which, being a ragged school, wasn't saying much for a chap; still, I went reg'larly, and tried my best. Joe Stoker, as I dare say you know, wasn't a bad scholar, and he used sometimes to go of an evening and help the boys over their figures, and his only child, Mary—who was about my own age, and as pretty and good a lass as ever was—went with him to show the gals how to make their own clothes. You should ha' seen how hard that gal of his tried to knock the lessons into my stupid head. I managed 'rithmetic fairish, for Joe was always makin' me count the strokes o' the hammer, the rivets, or the number of hours it wanted to Sunday, and I could chalk letters a bit on the wall; but as for spellin', I believe, as sure as you're smoking that there pipe, I'd never ha' known how to spell decent if it hadn't been for Mary. The nights that Joe didn't go out, I used to polish myself up a bit extra and see her across to the school; and all the way there and all the way back, it was spell, spell, spell, till I got hold of the words of the lesson.

Now I always looked upon Joe more as a father than a master, and so, when his wife died, and he took on so as to neglect his business, and when he was a'most ruined through a heavy job as he

* Concluded from page 228.

never got paid for, and when he broke his leg and was laid up for ever so long—all which happened afore I was twenty—I stuck all the closer to the shop, and he used to say, though not in my hearing, that Providence had giv' him a son as he never expected. I don't believe my own father could ha' treated me better than he did—or so well, for that matter—and I did all I could to show as I was not ungrateful.

It's just seven years ago this past Christmas, that one morning the postman brings Joe a letter as big as a sweetheart's valentine, and when we sat down to dinner he took it down from the mantelshelf and read it over and over, and seemed cast down like, and more thoughtful than usual. Yes, you're right, he was allers a bit serious, but he knew when to be serious and when to be cheery, and it aint every one as does. Well, as I was sayin', the letter didn't seem to do him any good; and so, thinking he might want to talk it over with Mary—whatever it was—I made an excuse about a job being wanted, and got back into the shop as soon as possible. He wasn't very long after me, but I could see when he came in that something had gone wrong. I had a good mind to ask him about it two or three times, but didn't, and so we scarcely spoke a word all the rest of the day.

Well, that evening, when the forge was shut up, Mary and I went out for our usual walk. Mondays, Wednesdays, and Fridays, we helped a bit at the school, and the other nights we took a stroll up along the New River, which wasn't covered up then as it is now. I never shall forget that night. We walked for miles without ever saying a word, and I don't know how much farther we might ha' gone in the same unsociable manner, if Mary hadn't said, "Harry, shall we go back?" There was nothing partic'lar in that, says you; no more there wasn't; but then, I could tell by her voice that she was cryin'; and then I up and asked her what was the matter at home, as I knew it must be that as made her low-spirited. "Well," says she, "you'd better know it first as last; they're going to turn father out of the forge, after he's had it for so many years, and it's to be pulled down to make a railway." You see, Joe never had a lease, so he couldn't make them find him another place, and it was too late to start afresh at his time o' life, as he said, and he didn't like to work journeywork agin, if he was able, which he wasn't. All the way we walked home we talked it over and over; and when we got nearly back we turned round and went over the same ground agin, for I wanted Mary to settle it right off hand. At last it was getting so late, that we began to fear lest Joe should be angry, so I pulled Mary's arm a bit tighter through my own, and I took her little wee hand in mine, and by the time we got to the door, though we hadn't spoken for ever so long, I pretty well understood what I might do next morning.

For all Joe's misfortune, I felt happier that night than I had ever done before, and in the morning I was up full an hour earlier than usual, workin' away with all my might, and singing like anything. Ay, and I was thinking, too—thinking how I should break it to Mary's father. Joe didn't come down till eight o'clock, and then he walked right up to the anvil where I was working, and looked me straight in the face. I felt as though I could ha' dropt, or asked his pardon for something. I s'pose he saw I looked foolish, for he stopped me as I was going to speak, held out his hand for mine, and, giving it a grip, "Harry," says he, "you've been a good lad as a servant, be an honest man as a son." He's dead now, bless him, but there's many a lad that was in the school besides me as'll keep him in memory.

So you won't wonder now why I don't like to hear the ragged school spoke against, though I shouldn't care to tell one as 'ud go and tell it agin, which I know you won't. I sometimes say to myself that if it hadn't been for Joe's going to that school, and feelin' for the poor boys there, he wouldn't have taken a fancy to me, and I mightn't have learnt what little I know, and I shouldn't have had a trade in my hands, and I'm quite certain I couldn't ha' got a wife as 'ud make me so happy, or as 'ud have her place so neat and tidy as makes me proud to ask a mate home and smoke a pipe over a bit o' gossip.

I s'pose I've pretty well tired you out with my talking, but you must stop now and take a bit o' supper. Mary always goes once a year and has tea with the teachers in Clerkenwell, and if this hadn't been the night, we shouldn't have been able to have such a spell alone together.

Ah! that's her; she's a'most as reg'lar as clockwork. Excuse me a minute. She's got the youngster with her, and I must carry him upstairs, for he's an awful weight, I can tell you.

A Working Man's Defence of Working Men.

The working classes of this country have seldom found among their own ranks advocates more eloquent, temperate, and able, than James Crowther, who, at a recent Reform meeting at Todmorden, said:—

"If I were to consult my own feelings, I should have been sitting to-night as a listener, instead of standing here to support the resolution which has just been read. But when it was represented to me that the co-operation of non-electors and electors was needful to make this truly a town's meeting—and when I remembered that the chief promoters of this meeting were persons already in possession of the elective franchise, and saw them give their time and care to secure for us the boon which they enjoy—I felt that it would be a thankless return for their self-denying labour if we left them to plead our cause alone, and that the working class would richly deserve the charge of apathy or indifference, which is sometimes brought against them, if we refused our co-operation when asked, except for some good reason. And then, so long as votes are denied us, it is only in meetings such as these that we can make our voices heard in matters political; and, to my thinking, this is the time when the class of workers should speak in language that gives a certain sound. It is proposed to enfranchise a number of working men; and though they may fairly claim it as a right, we are looked on as suppliants for favour, and treated very much like the way in which a purse-proud rich man treats his poor and dependent neighbour. I have often noticed if a man is poor, he is expected to be perfect; and when some flaw or infirmity is found in his character, it is regarded as a sufficient reason for allowing him to starve, because he has not been as good as he should be. And this is about the spirit which the enemies of reform are at this time manifesting. When it is proposed to give us votes, all at once it is discovered that we are a drunken, thriftless class of persons—ignorant as asses, and about as self-willed; that we have little morality, and less religion; and the country is warned in solemn tones of the danger of conceding to us one jot or tittle of political power. I grant that their description is partially true of but too many individuals among us; and if all the vices of the working class could be incarnated in some single person, he would almost realise the hideousness of the monster they love to paint; but I think we may fairly complain about having the worst vices of the worst men among us made typical of the class.

"It is bad enough for working men to be criticised and lectured at (as they have been of late by certain newspapers and certain politicians), without being misrepresented as well; for, no doubt, many of you know the kind of advice that is given us, and the sort of inferences which are drawn from our conduct. They tell us that if we wish to get a vote, we must show ourselves worthy of it, by acting the part of good citizens and obeying the laws. Well, sir, this advice we have acted on, and for these many years past the working men of England have shown themselves as loyal, as peaceful, and as orderly, as if they had had blue blood in their veins. It is true there have been exceptions—but not many more than are to be found in the higher classes of society—and these are to be accounted for by the disadvantages of their education and circumstances. Nor has this been shown merely in the regular course of ordinary times, when prosperity has made them tolerant of many wrongs, but in the recent cotton famine—which, considering its duration and its severity, we may fairly call unequalled—they have manifested those qualities of heroic, manly fortitude which have extorted the admiration of Europe, and have written a page in England's history which will shine bright when the deeds of Percy and Howard are all forgotten. But, lo and behold! after we have done the very things they advised us to do, these very men turn round, and tell the country that we do not care to have a vote, because we are not enthusiastic enough. If we wish to be received within the pale of the constitution in any other capacity than that of taxpayers, we must have no rows, no riots, no threatenings, such as forced the last Reform Bill into law; and then, because we take the hint, they point to our peaceable attitude as a proof that we are content with our present exclusion."

After criticising the nature of the objections urged against the Government Bill, he stated his reasons for believing it to be an honest measure. By that act the Ministry had established a claim to the support of reformers of every grade.

Mr. Crowther then alluded to the question of electoral corruption, the existence of which he deplored; after which he said: "Whether the working class possess the franchise or not, they are the thews and sinews of the State—the upholders of its influence, and the guardians of its honour; by their industry they have made England the hive of commerce, and by their endurance have extorted the admiration and envy of the world in the performance of the duties of citizenship; and by their loyalty and obedience to the laws of the land, they have given the best proofs possible of their fitness for a share in the government. And it behoves every lover of his country to ponder seriously the danger of continually resisting demands thus temperately urged, lest, through constant refusal, a sense of injustice should breed resentment and wrath, and force you to yield to fear what you refuse to justice. For, whether the present possessors of power will own it or not, we (the unenfranchised) are as truly Englishmen as they are, and have a stake in the country as dear to us as theirs. Their fortunes may lie in broad acres and splendid mansions, ours consist in the wealth of love that centres round the home we call our own, and is a treasure as preciously prized as theirs. The revolution that robs them of wealth will bring misery to our own hearth, and so is dreaded by us as much as they; and having given the nation these pledges of fidelity, why must we be continually suspected? and why refuse a generous confidence to men that breathe the same free English air, and speak the same English tongue, by not allowing us to add one more to the many links that bind us in allegiance to the throne we love, and to this country we call our own?"

Without declaring any opinion upon the particular political measures advocated by Mr. Crowther, we cannot forbear to express our admiration of the felicitous style of speaking in which he gave utterance to the sentiments of a large portion of his fellow working men. A speech delivered in such pure English, and in so manly and nervous a style by an artisan, is a very strong evidence of the latent power which exists in many individual working men, and which only requires earnest and judicious perseverance to be practically developed.

Paper Collar-making.

Paper collars are fast superseding those of linen. A machine, patented by Mr. D. M. Smyth, of New York, is one of the most singular and remarkable inventions of the day. Three peculiarities distinguish this machine above all others in use:—

1. *Simplicity.* What by all other processes requires to have a dozen separate operations is here accomplished by one. A single stroke of the die produces a perfect collar, button-holed, stamped, and moulded. The collar is turned by a single machine, and by another is, with nine of its companions, folded for the box. The latter process is in every other manufactory performed by hand. The small number of hands through which the collar passes also prevents it from becoming soiled.

2. *Its remarkable capacity.* This machine produces two collars per second; the eleven machines which are now in operation produce twenty-two collars per second, 1,320 per minute, 79,200 per hour, and 1,900,800 every twenty-four hours. Three hundred machines would supply every man, woman, and child in Great Britain with one collar per day.

3. *Its economy of labour and material.* The eleven machines in operation save the work of 396 hands. More than nineteen per cent. of the paper is saved, which in every other process is wasted. Seventeen distinct varieties of collars are manufactured by these machines.

THE WORKSHOPS OF THE WORLD.

INTERIOR OF MESSRS. BROWN AND POLSON'S PATENT CORN FLOUR MANUFACTORY, PAISLEY.

The Patent Corn Flour Manufacture.

We not unfrequently meet with persons who, with much self-complacency, affect a lofty disregard of what they eat, and who boast that in order to keep their appetites in subjection, they systematically, and on principle, eat whatever is set before them, quite irrespective of its character or fitness for the circumstances under which they live; endeavouring thus to carry out the recommendation of Solomon, to eat only for strength, not for pleasure. The gratification of the sense of taste, however, serves a much higher purpose than is commonly supposed; for, as a general rule, if the appetite be not blunted or perverted by excessive indulgence, our tastes and our requirements are very closely related; so that in man's natural state taste becomes, as it were, a sort of instinct, and takes rank as one of God's providences for the preservation of our health. In this way we may explain, what is matter of common observation, that a man's taste varies with his age, habits, and circumstances of life. At one time he wishes for, at another scarcely bears the sight of fat; sometimes he craves for animal, at other times for vegetable food. Indeed, the feelings of hunger and thirst, which have reference to quantity rather than quality, are not more evidently instinctive than is taste, which regards only the quality of food. As a guide, it may be safely trusted, both as to food and drink, if only we listen to its simple teaching, and do not abuse its confidence.

In no other way than the above can we explain the very remarkable varieties in the food consumed in different climates. Witness the Laplander with his mess of blubber, or the inhabitant of the tropics, with his refreshingly-cool and juicy fruit. In both these instances taste assumes the part of instinct, and guides the possessor to the selection of a diet which his circumstances render necessary. Hence taste becomes the handmaid of science, and points to a law in the dietary of individuals, telling them what they ought to eat, drink, and avoid. It suggests variation under varying conditions, and notably so in regard to temperature; for, from the two great divisions or types into which all foods are classified—namely, the nitrogenous, or tissue-forming, and the calorifacient, or heat-creating—it selects instinctively that one which science demonstrates to be most necessary.

A few words on these two types of food will serve to illustrate the dietetic value of the corn flour, one of the manufacturing processes of which forms the subject of our illustration.

By the term *nitrogenous* is meant all foods, whether derived from the animal or vegetable kingdom, which contain nitrogen as one of the elements of their composition, in addition to carbon, hydrogen, and oxygen. These foods are also called nutritious—that is, tissue-formers; and the measure of their nutritive value is the quantity of nitrogen they contain. The reason of this is found in the fact that all the tissues of the body, fat excepted, contain nitrogen; and those wherein the nutritive changes are most active, such as muscle and nerve, contain the largest amount of nitrogen. Examples of these foods are—meat of all kinds, eggs, milk, beans, peas, lentils, bran, and the inner coat of wheat, flour, or bread; though in the latter we approach nearer to the purely starchy or calorifacient group, and so get farther from the nitrogenous class.

The calorifacient or heat-producing group are foods which contain little or no nitrogen, but only carbon, hydrogen, and oxygen; starch and its varieties, rice, sago, arrowroot, potatoes, and flour; fatty and oily substances, such as butter, cream, and milk; and all the varieties of sugar. These make up the class of heat-sustaining foods, and though they do not directly nourish tissue, except where they also contain traces of nitrogen, they nevertheless perform scarcely less important functions in the human body, for, besides assisting in the process of respiration, they develop fat for the protection of the muscles, and, above all, they principally maintain the heat of the body which is essential for the due performance of all its functions. This they do by the union of their carbon with the oxygen of the air in the process of respiration, in the same way as in the combustion of coal—the residual oxygen and hydrogen being in the proportion to form water.

The required desideratum, it is believed, is now supplied in the case of flour made from maize, which, when boiled with milk, presents such a combination of animal and vegetable food as closely resembles ordinary beef and bread, while, at the same time, it is in so light and easily digestive a form as will keep the system fully nourished, when the stronger and more stimulating food would only weaken and depress by its indigestibility.

The maize plant, from which the corn flour is obtained, is said to attain, in favourable localities, a height of seven to eight feet, and bears two different kinds of flowers. When ripe, the grain produced by the plant forms a favourite article of food in tropical countries. In America it is dried before a fire and ground into meal, known as "hominy," which, mixed with wheaten flour, makes good and wholesome bread.

To Messrs. Brown and Polson belong the credit of being the first to introduce into this country the systematic manufacture of flour from the grain of the maize plant; but, although the article produced by them is so well known, few are acquainted with the details of the processes by which the corn is converted into flour. The grain, on its arrival into the Paisley establishment, is steeped in water, as shown in the illustration above, for the purpose of being cleaned from the various outward impurities which it may have gathered on being reaped, or during its transit from the shores of the Black Sea, where it is easily reared.

While yet in a moist condition, it is placed in large hoppers, and conducted to the grindstones, which are worked by steam power, and which rapidly reduce the grain to a mass of thick pulp, a kind of semi-liquid mass. After this process has been completed, the pulp is placed on a kind of inclined plane, arranged along the upper part of the building, and during its gradual descent, the liquid portion of the pulp, containing gluten, &c., is carried off through long pipes into cisterns below, while the remaining matter, consisting of pure farina, settles in a receptacle at the bottom of the inclined plane.

The pulp, by this time a somewhat hardened mass, is then subjected to a washing process, being placed for that purpose in large vats filled with pure water, after which it is carefully dried at a low temperature, and finally made up into neat and portable packages for the market.

The remaining portion of the maize, after the extraction of the amylaceous matter, is dried and ground, and sold as gluten.

*The Harmonium.**

The mechanical parts of the harmonium are very simple, consisting essentially of a clavier, or key-board, similar to that of the pianoforte and organ, and bellows to supply air to act upon the reeds. Ordinarily, the key-board has a compass of five octaves, the lowest note being "8 feet C," corresponding with the fourth open string of the violoncello. The keys, when pressed by the fingers, open valves, by which the wind from the bellows is allowed to act on the reeds. The bellows are of the ordinary double construction, with a reservoir, and two feeders worked by the feet of the performer. In the ordinary state of the instrument, the wind is supplied to the reeds from the reservoir of the bellows, at constant pressure, as in an organ, and the tone is then of uniform strength.

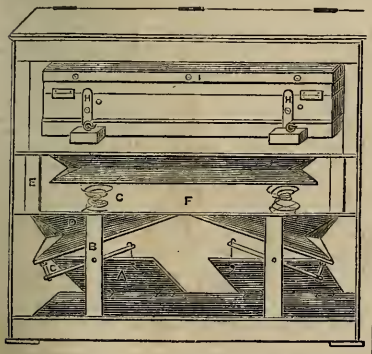
Like the organ, the harmonium is furnished with stops, usually four in number, divided into halves, and acted upon by eight draw-stops, placed immediately over the clavier, so as to be within convenient reach of the hands. They receive different names from different makers, but the following are those usually adopted:—

BASS.	TREBLE.		ORGAN-PIPE.
1. Cor Anglais . .	Flute (Percussion)	=	8 feet.
2. Bourdon . . .	Clarinette	=	16 feet.
3. Clarion . . .	Fifre	=	4 feet.
4. Bassoon . . .	Hautbois . . .	=	8 feet.

The two 8-feet stops are of different qualities, one of them being acted upon by the *percussion* movement—an invention intended to remedy the defect of want of promptness in the reed answering to the touch on the key. It consists of a small hammer, connected with the key, which gives a gentle blow to the reed at the moment of opening the valve; the effect of which is to make the note speak with remarkable rapidity and precision, and also to impart a peculiarly brilliant and agreeable quality to the tone.

There is a simple contrivance by which the power of *expression* is given. By drawing out the stop marked "expression," the wind communication to the reeds is cut off from the reservoir of the bellows, and opened to the feeders; by pressing the foot down, therefore, with different degrees of force, *piano* or *forte*, *crescendo* or *diminuendo*, may be obtained at pleasure.

Beside the stops named above, there are others of a mechanical nature: one called the *grand jeu*, which brings on the "full organ" at once; and another marked *forte*, which opens a sliding shutter to increase the volume of sound—something on the principle of the swell of an organ. The *sourdine* and *celeste* are also mechanical contrivances, by which the tone of certain of the

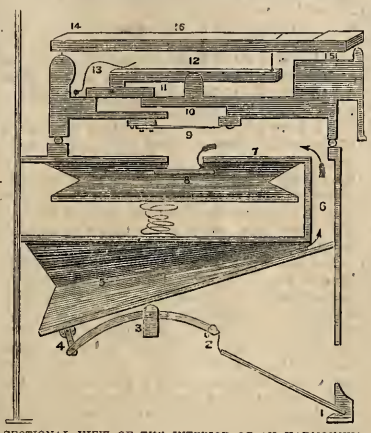


BACK OF AN HARMONIUM. CANVAS BACK BEING REMOVED.

A. Two pedals working on hinges. B and C. Pins. D. Feeders and reservoir. E. Passage for wind. F. Large reservoir. G. Spiral springs to reservoir. H H. Hooks fastening wind-chest and keys in position by screws. (The latter are only put in for safety on a journey.) I. Rail holding keys at back.

stops is modified, to produce variety. The quality of tone in all the stops depends, in some measure, on their positions, and on the arrangement of the wood cases in which they are enclosed, and which act, to some extent, as sound-boards.

The harmonium has been gradually brought to its present state of perfection, chiefly through the skill and ingenuity of Messrs. Alexandre and Dehain, of Paris. Considering its capabilities and power, the instrument is of small size, occupying less room than a cottage piano. Usually, it is about four feet wide by two feet deep, and three feet high, the size varying with the power of the instrument. For small rooms, the harmonium is very superior to the chamber organ, and



SECTIONAL VIEW OF THE INTERIOR OF AN HARMONIUM.

1. Pedal working on two hinges. 2. Catgut connecting pedal with lever. 3. Lever working on a pin. 4. Crank, working bellows. 5. Bellows. 6. Passage through which wind passes to wind-chest. 7. Wind-chest supplying air to reeds. 8. Reservoir to regulate the supply of wind to the reeds. 9. Reed. 10. Passage through which the air passes after setting the reed in motion. 11. Valve which prevents the wind from passing through the reeds until it is raised by the key. 12. Pin on which the valve works. 13. Metal spring holding down the valve, and regulated by a screw. 14 and 15. Pins on which the keys work. 16. Key opening valve.

far less expensive; and it is admirably adapted for use in small churches, chapels, schools, &c., for which purpose its clavier is expanded to seven octaves.

In the United States, this instrument is known as the *melodeon*, and has received important modifications and improvements at the hands of Mr. Jeremiah Carhart. He conceived the plan of acting on the reeds by suction instead of blowing, and reversed, to this end, the bellows and the reeds. He thus secured prompt sounding and a flute-like quality of tone; "voiced" the note by curving the reeds, with many other changes.

It may be necessary to explain why the stops are divided into *halves*: this is done because the sounds of each stop go through half the key-board only. Thus, if a stop be drawn on the right side of the instrument, it gives only *treble* sounds. If it be desired to continue the sounds in the *bass*, we must draw the stop bearing the same number on the left-hand side. Thus, although there are eight stops, there are, in fact, only four descriptions of sounds—the Flute being continued in the Cor Anglais; the Clarinette in the Bourdon; the Fifre in the Clarion; and the Hautbois in the Bassoon. It is not always desirable or necessary that the melody should be accompanied by a bass of exactly the same quality of tone, or *vice versa*. For instance, a melody may be played on the Hautbois (No. 4), and its bass, or accompaniment, on the Cor Anglais (No. 1); or a melody may be played in the bass on the Bassoon (No. 4), and a light accompaniment on the Flute (No. 1).

Character of the Stops.—Those on the right-hand, or treble side—1. *Flute.* This stop is very effective in melodies, and is employed for all music of a soft, tender character. In organ music, diapason movements are usually played in this stop: combined with the Hautbois, it imitates the human voice. Its proper bass is the Cor Anglais.

2. *Clarinette.*—This stop, when used for solos, imitates the instrument of that name: it sounds an octave lower than the actual note played; its natural bass is the Bourdon. Combined with the Flute or Hautbois, it gives the melody in octaves; or with the *Fifre*, two octaves apart.

3. *Fifre.*—This stop is an octave higher than the Flute: it is rarely used alone, except for echo effects. In combination with other stops, it sharpens the tones and imparts brilliancy: its natural bass is the Clarion.

4. *Hautbois.*—This stop imitates the instrument of the same name; its bass is the Bassoon: employed with the Flute-stop, it imitates the violin and human voice.

The stops on the left-hand, or bass side, of the clavier are—

1. *Cor Anglais.*—This stop forms the bass to the Flute. Melodies are very effective on this register, when accompanied lightly on the Flute.

2. *Bourdon.*—An imitation of the stop of the same name in the church organ: it is an octave lower than the Cor Anglais. It forms the bass to the Clarinette.

3. *Clarion.*—This stop is an octave higher than the Cor Anglais: it is of great utility, in combination with other stops, to strengthen a melody, and is sometimes used alone to produce particular effects: it is the bass to the Fifre.

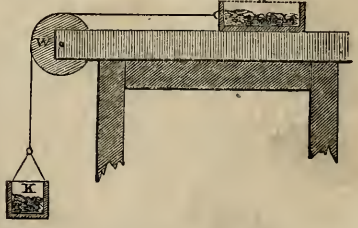
4. *Bassoon.*—A very pleasing stop. Employed with the Cor Anglais it imitates the baritone voice and the violoncello: it is the bass to the Hautbois.

* Continued from page 198.

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

It is recorded in the Memoirs of the incomparable Martinus Scriblerus how, in his eager pursuit of knowledge, he met with an extraordinary misadventure through the ignorance of his assistant, Crambe. Having secured the body of a malefactor, he hired a room for its dissection near the Pest Fields of St. Giles's, at a little distance from Tyburn Road. The body was carried by night, without much difficulty, on Crambe's back, who found it easy (being both young and lusty) to travel along the level road, carrying on his legs the double weight of the malefactor and his proper self. As soon, however, as he commenced to ascend the staircase, the increased exertion began to tell upon Crambe, and, as the accurate historian relates, upon the corpse also; in consequence of which, Crambe dropped his burden in disgust and fright, and allowed it to roll downstairs, while he ascended, breathless, into the upper room, where Martin, scalpel in hand, awaited the arrival of his expected subject. Crambe's failure in this important enterprise was caused by the sudden accession of Work, and consequent fatigue, the moment he commenced the ascent of the staircase. So long as he travelled on the level



road, with his burden on his back, he had to overcome the resistance of Friction or Traction, offered to horizontal motion; but as soon as he began to mount the stairs, he was obliged to overcome the resistance offered by a much greater force—viz., the united weights of himself and the corpse.

This resistance offered by weight to vertical ascent, I shall presently show to be about twenty-five times the resistance offered by Friction to horizontal movement. Under these unfavourable circumstances, it is not to be wondered at that poor Crambe's courage failed him; and that, finding himself unable to ascend with the alacrity required by the occasion, he quietly let go his hold, and rushed *breathless* into the presence of his master, being overcome completely by his unwonted exertions.†

* Continued from page 178.

† It is true that Mr. Pope gives a different account of the cause of this celebrated disaster, and one which absolves Crambe from the charge of having proved unable to carry the malefactor up a flight of stairs; but I have no hesitation in asserting that the explanation of the misadventure given by me is the true one.

If we attempt to drag a weight horizontally along a level road, we experience a resistance which is called *friction*, and are compelled to exert a force, in order to overcome it, which is called *traction*.

Let A (*see diagram*) represent a box containing a quantity of material, which, including the weight of the box itself, we may call *a*.

To this box we attach a string passing over a wheel, w, and having at its other extremity attached another box, K, whose weight is *k*, to which is gradually added sand or shot, until the weight *k* just commences to move the weight of the box A along the level table.

Let us now suppose that the box A has moved through any number of feet, say *x*: then it is evident that the weight *k* has also descended through the same number of feet, viz., *x*. Hence, the work done in transporting the box A through *x* feet is $k \times x$, and not $a \times x$, as might be supposed at first.

It has been found from many experiments that the proportion of *a* to *k* is different, according to the nature of the materials of which the box or wagon, and the road it is made to travel over, are composed. It differs, also, according to the kind of wheels or supports on which the box is lifted.

When the motion is one of simple *sliding* of one surface over another, the friction is greatest, and the proportion of *k* to *a* is also greatest; but if lubricating matter, as grease, be used, or if wheels be placed under the box, the friction or traction is greatly diminished.

Supposing the weight of the box A and of its contents to be one ton, the friction it exerts in sliding motion is given, from the best experiments, in the following table:—

TRACTION, EXPRESSED IN POUNDS PER TON, REQUISITE TO DRAW A LOAD ALONG A HORIZONTAL PLANE.

NATURE OF SLIDING SURFACES.	STATE OF SURFACES.	TRACTION.
1. Oak on Oak . .	Dry . . .	1,389 lb.
2. Oak on Oak . .	Rubbed with dry soap	986 „
3. Oak on Oak . .	Wet with water .	1,590 „
4. Oak on Elm . .	Dry . . .	851 „
5. Iron on Oak . .	Dry . . .	1,389 „
6. Iron on Iron . .	Dry . . .	426 „
7. Limestone* on Limestone* . .	Dry . . .	1,658 „
8. Brick on Limestone*	Dry . . .	1,501 „
9. Oak on Limestone* .	Dry . . .	1,411 „
10. Iron on Limestone*.	Dry . . .	1,098 „

Combinations of Employers and Employed.†

LORD ST. LEONARDS' ARBITRATION BILL.

We have stated that workmen are now perfectly free under the law to enter into combinations for the purpose of raising wages or altering the conditions of labour; but any attempt to enforce the principles of such a combination upon other workmen, is an offence punishable by imprisonment, with or without hard labour, according to the circumstances. We will now adduce one or two instances of the application of this law, as it bears on the proceedings of Trades Unions.

The following instance may be taken as an example of a large class of cases:—One of the members of a Trade Union, whom we will call A, was working for a master who also employed other men, not members of the society, nor qualified by its rules, to do his work. A was censured by some of the members of his Union for working in the company of the others, and one of his fellow-members, B, threatened to use his influence with the society to turn A out if he did not leave. A disregarded the threat, and continued in his work. A meeting of the Union was called, and A was summoned to attend. The business of the meeting was to obtain a distinct answer from him as to whether he would leave his employment and remain a member of the Union, or abide in his service and be turned out.

At this meeting B took the chair. Another member of the society, C, who had been deputed to wait on A's employer, and endeavour to persuade him to conform his arrangements to the principles of the Union, reported the unfavourable result of the interview. A was then asked by B whether he intended to remain an honourable member of the Union, and leave his shop, or stay there, be despised by his club, have his name sent round all over the country in the society's report, and be subjected to other unpleasantness of a similar nature.

A remained firm in his determination to keep the employment, and an action was brought against B and C for infringing the Act 6 Geo. IV., which we have previously explained. The case was eventually argued in the Queen's Bench, and it was held that B might properly be convicted and punished for unlawfully, by threats and intimidation, endeavouring to force A to depart from his hiring. Against C, the evidence was not considered sufficient.

We have set forth this case as an illustration of the restrictions properly placed by the law against the inducing or compelling of any workman to act otherwise than he himself may see fit. Every man has the right to dispose of his labour, like any other property, according to his own choice, and the law will see that this right is uninfringed.

The rights of the employed being thus guarded by the law, it protects those of the employer in the same manner. A threat was made by D, a workman, in conjunction with others, that they would strike unless the master discharged certain other servants in his employ under particular terms. D was summoned for an offence against the Combination Act, and punished, as it was held that his threat was intimidation within the meaning of the statute, which makes it unlawful to endeavour to force a master to alter the conditions of his work.

While combinations of both employers and employed for trade purposes are permitted and recognised by the law, yet it will not enforce any agreement which may have been entered into, to carry out the principles of such a combination. All such agreements are held to be in restraint of trade, and prejudicial to the public interest. For this reason the law will not recognise nor enforce them. The following case is an illustration of this principle:—

Eighteen mill-owners had bound themselves together, by bond, not to open their mills until a certain strike among the operatives should have terminated. The penalty of £500 was attached, by common consent, to an infringement of the bond. One of the mill-owners at last opened his mill; and thereupon an action was brought against him on the part of the other mill-owners, to recover the £500 which was forfeited under the agreement. But the Court held that the bond was void, as being against public policy; and one of the judges expressed an opinion that the parties to it were indictable. The decision was appealed against in the higher Court, but there the judges were unanimous as to the illegality of the bond.

The principle here established of course applies to any understanding as to penalties and forfeitures among workmen in Trades Unions, &c.

In order to prevent the evils arising from strikes and combinations, the law has made provisions for the arbitration of disputes between masters and workmen. These provisions are contained in the Act 5 Geo. IV., c. 96, and subsequent statutes, and mainly consist of the following points:—

Any question in dispute as to wages to be paid for work done or being done, may be submitted, by consent of both master and workmen, to the arbitration of a magistrate, who is not himself a manufacturer or agent in the trade. All such matters as compensation for working a new pattern, or pieces of goods of unusual length, or the quantity to be contained in a piece, are expressly included within the scope of the Act. Or referees may be appointed to arbitrate on such questions, and in the event of their differing, a magistrate may decide. The decision of magistrates or referees may be enforced by penalties; and the parties who refuse to abide by the award or to pay the penalties, may be subjected to imprisonment or distress. At the same time, magistrates are not empowered to establish any rate of wages to be paid in future, without the mutual consent of both employer and workmen; and even in that case their award is only binding on the parties themselves who may agree to submit to the arbitration.

This law has rarely been put into operation, both masters and workmen having shown unwillingness to place themselves within its provisions. But the principle of arbitration is too important to be allowed to remain a dead letter in the law; and Lord St. Leonards has therefore introduced into Parliament a Bill designed to make arbitration between employers and employed more popular, and more generally resorted to in the settlement of their disputes. A brief outline of its provisions, on which the noble lord has earnestly invited the working men of the kingdom to express their opinions freely, will be appropriate here.

The Bill is entitled "An Act to Establish Equitable Councils of Conciliation, to adjust Differences between Masters and Operatives." It commences by referring to the Arbitration Acts to which we have just alluded, and does not design to repeal them, but to go *beyond* them in facilitating the settlement of disputes. It therefore enacts, in the first place, that if any number of masters and workmen shall, at a meeting convened for the purpose, agree to form a Council of Conciliation and Arbitration, and shall petition Her Majesty for a licence for such council, a licence may be issued, establishing a council of not less than two masters and two workmen, nor more than ten masters and ten workmen, who shall have all the powers of referees under the before-mentioned Acts. The masters petitioning for a council in any district must have resided and carried on their trade within that district for at least six months previously to the petition; and the men must have resided there for the like period, and worked at the trade, or calling, for seven years before signing the petition.

The council is to be elected by the persons who sign the petition, and to consist of an equal number of employers and employed. After election, the council is to appoint its own chairman, who must be some person unconnected with trade; and the chairman is to have a casting vote when the votes of the other members of the council are equal. The award of the council on any case in dispute is to be final, without review by any authority in the kingdom; and the penalties which attach, under the existing law, to failure to submit to an award, are to be equally enforced with regard to the council's decisions.

Not less than three persons—one a master, another a workman, and the third the chairman—may form the quorum of any council for the hearing of disputes and adjudication upon them.

A standing committee is to be appointed by each council, to consist of one master and one workman, and to be called the Committee of Conciliation. It is to be the business of this committee to endeavour to reconcile the parties and adjust their differences, before bringing the matter to the hearing of the council itself.

The council and chairman are to be elected in each district on the first Monday in November of every year; and every master who has resided and carried on business within the district for six months, and every workman who has so resided, and has worked at the trade for seven years, are to be entitled to vote in the election.

These are the chief provisions of Lord St. Leonards' Bill. It undoubtedly supplies a better framework for the adjustment of difficulties between employers and employed than is afforded by the existing law on the subject; and we trust that when its details and provisions have been fully discussed, both by the classes for whom it is designed and by Parliament, it will prove a means of healing many of the differences which we have so often to lament between those concerned in our national industry.

The Working Man, as described by the "Pall Mall Gazette."—"The artisan, as we should describe him, especially the Northern artisan, is a shrewd, dogmatic, thinking man, with much curiosity, and usually a rather prosaic appetite for scrappy facts of any sort, often excessively fond of the sciences of observation—botany and geology, for instance, rather than chemistry or mathematics (there are in Manchester many excellent botanists among the operatives); a man apt to be fond, like young men at college, of metaphysics and first principles generally; often with a taste for history, but if so, inclined to prefer authors who are at once dull and credulous of marvels, like Josephus, to better writers; crotchety and usually republican in politics; very sceptical in religion, or if not sceptical then a systematic Calvinist or Unitarian; quite the reverse of undomestic in family life, but apt to be arbitrary and hard; in a word, just what you might expect from men thrown early on their own resources, of very imperfect education, and with no harmonious culture, no developed sense of beauty, but still with vigorous, bold, and usually honest minds."

* The Limestone used was Portland stone.

† Continued from page 231.

THE METROPOLITAN AND PROVINCIAL WORKING CLASSES' INDUSTRIAL EXHIBITION.

On Monday, April 9th, a meeting of the honorary London agents and friends interested in the above undertaking was held at the Agricultural Hall, Islington, for the purpose of receiving a report from the Council, and discussing the various means which are being adopted to insure the success of the exhibition. From the report we learn that the scheme has been entered upon with considerable spirit, and will embrace sufficient novelty to give it a very distinctive character.

The exhibition is to take place at the Agricultural Hall, Islington, in September next, and to consist of contributions exclusively from workmen in London and the provinces. For the benefit of the latter the railway companies have liberally offered to return unsold goods free, so that the expense of carriage to exhibitors will be but half the usual charge. An attractive item in the programme is the fitting up of small workshops, supplied with steam power, where mechanical operations will be carried on in the presence of the visitors.

The professedly artistic element in these exhibitions has often been a source of pardonable ridicule; for although working men are evidently fond of occupying their leisure hours by drawing and painting, there are very few who do not betray a lamentable ignorance of the simplest rules of art. With the view of rendering some practical assistance in this direction, the "Lords of the Committee of Council on Education" will furnish a full illustration of the instruction afforded in the Government Schools of Art throughout the United Kingdom. These will, no doubt, be the best productions of the students, and may lead many to avail themselves of institutions of the existence of which they are probably at present ignorant.

The musical arrangements are of an extensive character, but will be chiefly confined to societies supported by the working classes. The Tonic Sol-fa Association are to organise six concerts of 1,000 voices each; and the Band of Hope Union, dividing their children into choirs of 1,500 strong, will also afford musical entertainment on several evenings. The instrumental music will be supplied by the volunteer, police, and other existing sources, and varied by occasional performances on the Great Exhibition organ.

The National Temperance League, the United Kingdom Alliance, and several other societies having for their aim the advocacy of the social interests of the industrial classes, will organise demonstrations for particular days, and in some cases receive a per-centage of the sum taken for admission; while the whole of the children connected with the parochial, Sunday, and ragged schools will be admitted to the exhibition, under the care of their teachers, without charge.

In addition to the above, lectures are to be delivered, and a flower show is to be held, while a large hall will be fitted up for the use of societies who may desire to hold meetings during the period the exhibition remains open. There are other matters referred to in the programme, including an Art and Industrial Union, to encourage the sale of the articles exhibited; but sufficient is here stated to show the character of the undertaking.

The report concluded by a statement that the honorary agents throughout the provinces had evinced a desire that their several districts should be well represented, and that the Council had received on all hands the most encouraging indications of success. It was also stated that Messrs. Houlder Brothers, the shipping agents, had offered to construct a full-sized emigrants' ship-cabin, thirty feet long, fitted with every requirement for a voyage to New Zealand, showing the accommodation afforded to workmen emigrants; also to collect a number of native implements and specimens of produce, illustrative of emigrant life in the colonies. That James McEwan, Esq., of Melbourne, who had started for Australia in January last, would present an address from the Council to the working men of the colony on his arrival, with the view of obtaining contributions from Melbourne. That an ode, written for the occasion by Mr. John Plummer, formerly a factory operative, was being set to music, under the direction of the Tonic Sol-fa Association, and would be sung at the opening ceremony by 1,000 voices. That Messrs. Ray, Mead, and Co., had offered to supply seats for 2,500 persons, free of cost, together with the use of a steam-engine for working a fountain. That a proposal had been made to purchase a lifeboat, by subscription, to be exhibited, and presented to the National Lifeboat Association in the name of the working men of Great Britain, and that Messrs. Cassell, Petter, and Galpin had kindly consented to act as treasurers, and receive subscriptions to the lifeboat fund.

After the reading of the report, the local representatives gave some account of what had been done in their various districts, and promised the undertaking their energetic support. An acknowledgment having been made to the agents, on the part of the council, for the spirit in which they had taken up the matter, it was proposed by Mr. Burgess, of Lambeth, seconded, and carried unanimously, "That this meeting has heard with satisfaction the arrangements already made for carrying out the proposed exhibition, and desires to express its entire confidence in the members of council who have undertaken its management."

Letters from Lancashire, by a Lancashire Lad.

VII.—OPERATIVE NATURALISTS, ETC.

One of the most notable characteristics of these humble students of natural science is the absence of all jealousy. Each one has at all times been ready to contribute what special information he may have had for the edification of those of his own class, or to the more widely known men who are recognised all over the world as authorities in scientific matters. It is worth observing, too, that frequently these men were first led to the study which proved the delight of their after life by a feebleness of bodily health, which made the ordinary rough sports of childhood impossible to them. By means of the societies which I described in my last letter, they could meet one another and compare notes, exhibit and exchange specimens, and in other ways give or obtain that mutual assistance, without which their energy and persistence in observation and study would have produced less noteworthy results.

It would be an easy matter to obtain sufficient information respecting these men, their lives and their works, to fill a volume; but I can only attempt a few brief notes, such as shall suffice to give to working men in other parts of the country some notion of their Lancashire compeers. John Mellor, James Crowther, John Horsefield, Edward Hobson, Richard Buxton, George Cayley, and David Dyson are the names of some of these men, each of whom deserves to have his life separately chronicled, and who all achieved great eminence in their peculiar studies.

John Mellor was born of poor parents, living near Royton, in 1767, and lived to be eighty-two years of age. His first occupation was handloom weaving, which he forsook for spinning on the jenny. When he was about thirty years old, he took the more congenial situation of a working gardener. He was indefatigable in his studies. Having exhausted the district in which he lived, he is said to have made annual excursions to Yorkshire and the northern counties, and afterwards to Scotland. Whilst on one of his Yorkshire rambles, the gardener at Wentworth introduced him to Earl Fitzwilliam, and he was always treated well, the earl frequently purchasing rare plants from him. Such was his ardent pursuit of his special science, that he is said to have traversed the Highlands of Scotland six times, ascending Ben Nevis, Ben Lawers, Ben Lomond, the Bredalbane, the Clova, and several other mountains. The plants collected by him in these rambles he took to Edinburgh, and amongst other botanists who were indebted to him for specimens, was the late Sir W. Hooker. These Scotch rambles were not free from danger. Having visited Edinburgh and Glasgow with specimens for which he obtained some £13, he left the latter place, and, fancying one of his pockets was likely to have a hole in it soon, he tied three of the sovereigns in a knot in the corner of it. It was fortunate that he did so, for on approaching Kilmarnock he was knocked down by two highwaymen and robbed of the ten loose sovereigns; but the three tied in the corner escaped notice, and he was able with them to reach home. Such had been the temperate conduct and the healthful occupation of this man, that up to a week of his death he could work in his garden. The respect with which he was regarded was evinced by the number of botanists of his own rank in life who came from various parts of Lancashire and Yorkshire to attend his funeral.

James Crowther was born in a cellar in Deansgate, Manchester, in 1768. His father was very poor, and, after such schooling as could be given to him, James went to work as a draw-lad at petticoat-weaving, when he was nine years old. He commenced his study of botany when he was very young, and soon joined a botanic society, consisting entirely of working men, who met together once a week during the spring and summer months. It was not an uncommon thing to have over forty of these men at one meeting. Frequently, after finishing his day's work, Crowther would start on a journey of fifteen or twenty miles, to some place where he expected to find some plant of which he had been informed. Sometimes he would reach the place by dawn, and manage to return in time for work next morning. Sometimes he was encountered by gamekeepers, and was treated as a poacher. He often escaped them by means of his fleetness as a runner. He discovered many plants and insects new to his neighbourhood. He was frequently accompanied in his rambles by one or other of the working men, who, like him, were addicted to these botanical studies. Sometimes Edward Hobson or Richard Buxton would be with him, and they frequently got into scrapes, or played bits of practical jokes with each other.

The perseverance and energy of these men in their quest for rare specimens was such as to give them all the excitement which others find in seeking the tail of a fox. Once Crowther and John Dewhurst were out—at Mere, in Cheshire—and suddenly the former gave a great shout, and threw his hat high in air. When Dewhurst turned round, Crowther told him he had found a new plant—a perfect gem. It was the *limonella aquatica*. Great excitement prevailed amongst their friends respecting this plant. Hobson said he would not believe them, unless he saw it growing. Crowther took him to the mere where he had first seen it, but, unfortunately, frequent rains had so swollen the lake, that the plant was a considerable distance under water. Feeling for his friend's disappointment, Hobson commenced botanising in the fields about, and, whilst doing so, he heard a plunge in the water. Turning round, he found that Crowther had disappeared. Rushing to the bank in alarm, he was in time to see his old and drenched friend emerge from the water with the precious specimen in his hand. Many writers upon botany were indebted to him. His steadiness may be assumed from the fact, that he was employed as a porter by one master for twenty-five years, and by another for sixteen years. In his first place he had 16s. per week, in the other £1. So long as his wife lived, he gave his wages to her for the support of herself and his children; and after he had done his regular work, he would go down to meet the Duke of Bridgewater's packet, hoping to earn a little money by carrying a parcel for one or other of the passengers. The money he earned this way was devoted to his scientific pursuits. The story of his acquaintance with Sir James Edward Smith has been told before, but it is worth repeating. When Sir James was at work upon one of his books, he was staying with his friend, Roscoe, the historian, at Liverpool. By chance, he mentioned to Mr. Roscoe that his book was being delayed from the want of information respecting mosses and lichens, and his friend at once recommended him to see some of the Manchester weavers. Sir James is said to have ridiculed the notion at first, but afterwards he acted upon it. He came to Manchester by canal, and asking for a porter to carry his carpet-bag, old Crowther himself was engaged. As they walked towards the hotel, Sir James asked his porter if he knew a man whose name he mentioned. "Oh, yes," said Crowther, "he's a bit in my way." Sir James asked what way that was, and obtained for reply that he was fond of collecting mosses and lichens. They went on to the hotel, and in the conversation which they had there, Sir James obtained all the information he wanted. In his old age, Crowther was very poor. His children were married, had families of their own, and could not do much for the support of their father. In this extremity he had to part with almost all his plants and insects. He suffered at once from mental and physical debility. Some few gentlemen subscribed to contribute a small sum weekly—about 5s.—which kept him just outside the workhouse. This was done for about eight months, and then it was discontinued, because the "Society for the Relief and Encouragement of Scientific Men in Humble Life" had commenced operations. Unfortunately, the society only allowed him 3s. per week. It is rather sad to have to record the fact, that, whilst he was supported so meagrely when living, so soon as his death became known, a subscription was started, and very rapidly £7 was obtained to bury him, and to place a stone above his grave. I don't like to comment upon this conduct; it reminds me of the epigram written upon the monument of the author of "Hudibras"—

> "While Butler, needy wretch, was yet alive,
> No generous patron would a dinner give.
> See him, when starved to death and turned to dust,
> Presented with a monumental bust.
> The poet's fate is here in emblem shown—
> He asked for bread, and he received a stone."

Crowther died in 1847, aged seventy-eight.

MONEY PRIZES,
TO BE COMPETED FOR BY
WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

APRIL 21, 1866.

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The People and the Picture Galleries.

Organisation is a great thing. It is a triumph of progress in itself. Union implies sense, self-denial, and clearness of purpose; and the working class are to be congratulated on the possession of it which they display. It only requires to be put to great uses to accomplish results of the most advantageous description.

In every form, and in almost every town, artisans are coming to the front, by the agency of Co-operation. It is a strange fact that no Trades' Union has hitherto attempted it. Co-operation is now known to be a power which makes workmen rich, while strikes frequently make them poor. Last year the Co-operatives of Rochdale made £25,000 in profits. When did the Trades' Unionists of any town ever make that sum by strikes, clear of all expenses, having the money well saved up and invested? We have heard of them losing it; we never heard of them gaining it. We do not now intend to discuss the losses or gains of strikes. There is a principle in strikes which must not be confounded with mere loss or gain; but since gain is, without doubt, the main object of a strike, it is fair to ask, "How is it, then, that gain by Co-operation has never occupied the attention of any Union?" Since, however, artisan societies now see their way to improvement by Co-operation, it is, we repeat, curious that a Trade's Union, usually in advance of its compeers in sagacity and intrepidity, should not. There are reasons for this, but we should feel inclined to put them down among unreasonable reasons, if such a classification exists. We heard a member of Parliament—one of the foremost friends of the people—express, on the fact being mentioned to him a few days ago, the greatest astonishment at such a state of things.

The point, however, we have in view to suggest is, that Trades' Unions should raise themselves to a level with schools, colleges, and general social institutions, and arrange to visit in bodies public exhibitions of interest. For instance, there is the Hildebrandt Gallery of Drawings lately opened in Piccadilly. It is closed at present, but will be re-opened in May. It contains upwards of 200 drawings, made by the greatest German water-colour painter who has appeared—Herr Hildebrandt. Carl Werner is a distinguished German painter in water-colours, but inferior in individuality of treatment and mastery of tone, to Hildebrandt. But this is an artistic, rather than a public point. The interest of this exhibition to the public is, that Herr Hildebrandt has travelled over the hitherto unknown worlds of China, Japan, and Manilla, and brought home transcripts of scenes, of which few travellers who had reached them had returned to tell the particulars, and certainly no painter ever beheld them who had the intrepidity and skill to depict them as this artist has done. Mandarin and jolly-boat, junk and pagoda, river and street, land, and sea, and sky, the golden sunset and the dread typhoon, the bright light without heat, and the heat without air, the objects and aspects of Nature, are caught and fixed by Hildebrandt's educated eye and wonderful hand. There is the Street of the Pirates, the Coast of Pokofooloon, Cowloo and the dreamy Pearl River, the Chinese Wall at Bonatigris, the wonderful City of Pekin, looking as though built at the bottom of the sea; the blue porcelain-domed Temple of the Heavens, Silk Streets and Circular Streets, resplendent with colours unknown to us; the Coast of Japan, Nagasaki, Jakohama, the Sacred Mountains of Fusi Jama, all painted with matchless reality, giving the splendour of Nature without its poetry; presenting not what an inspired artist saw, or thought he saw, in some exceptional moment which will never occur again, and which no other eye save his would see if it did—but what the observer will be sure to see if he should visit these wondrous and remote places.

This exhibition is lighted with gas at night. There are other exhibitions—such as the Dudley Gallery, and the collection of Water-Colour Paintings, of purely English interest, at the Egyptian Hall—also lighted up in the evening. Why should not Trades' Councils call the attention of their members to these places, and arrange that they and their wives and grown-up children should visit them? If they went in large numbers, four, or even six persons, could obtain admission at the price of one. Artists, foreign and British, would be proud that working men should take an interest in their works. It would be in the power of Trades' Unions thus really to encourage art, and cheer very often the spirit of the artist.

One effect of the people going to see works of art would be, that the character of works of art would improve. Now our great exhibitions, amid many pictures of beauty and memorable worth, have great spaces occupied with vapid, conventional, purposeless subjects, which it can do no human being good to see. Now and then a Maddox Brown, a Holman Hunt, or some similar-minded artist, ventures to paint what ought to be painted. Mr. Millais has done so occasionally, giving us some tragic or instructive incident of real life. How many more would do this if the public went to see the works of artists. If *Punch* once had its "million moralities," how much more ought our canvases and panels to have them. Some of our greatest animal painters have given us cowardly and painful pictures. Indeed, pictures are generally painted for those who come to see and buy them. You may know who mainly frequent our exhibitions by the fashionable and meaningless compositions which hang upon the walls. We are quite aware that art is art, apart from any lesson it conveys. But some great painters have, in all ages, painted great lessons as well as great pictures, and this would be, and might be, more the case than it now is, with every advantage to art as well as social progress. The daily life of the people furnishes instances of interest which few painters care to delineate. They ransack imagination and books for subjects, and leave the vast stage of social life, on which countless dramas are being played, unnoticed before them. If our working men would go in the way we suggest to picture exhibitions, this deficiency of taste would be rectified; and, apart from the pleasure and instruction they and their families received, they would assist in exalting the character of their order, and really promote the interests of art, by bringing to bear upon it an influence which, in no age or country of the world, has ever yet been attempted.

The Co-operators of Rochdale buy the best optical instruments, the best books of travels, the best maps, the best dictionaries and books of reference, and are among the ready patrons of our best literature. Working men who were helpless a few years ago, now send their agents into the money markets. Trades' Unions invest in the funds, and have a place among the little millionaires. This was incredible when the present generation was yet young. Co-operators are building public halls, as they have done in Brighouse, Burnley, Salford, and elsewhere. They have newsrooms and libraries; one day they will want pictures to adorn them. They will go to galleries to select paintings; they will one day give commissions; they will become picture-buyers. Mr. Lowe, Mr. Horsman, Lord Elcho (who is himself a distinguished connoisseur in art), and others of the same class, know not all that is in the heart, and near the realisation of the people. When the day comes, artists will learn to paint for the people. There was a time when authors wrote for the few, just as painters now paint for the few. Now authors write for the many, and literature is all the better for its million patrons, who render the author independent of all other patrons, and call out all his whole genius. So it will be with art one day, when the people turn their attention to it.

Social Meetings for the People.—The promotion of friendly social intercourse between working men and persons in other ranks, of greater culture, has always been one great benefit which the promoters of Working Men's Clubs and Institutes have desired to see them accomplish. To exemplify the value of such interchange of thought and sympathy, and to stimulate its development throughout those societies, the Council of the Working Men's Club and Institute Union propose holding three social meetings, in the Lower Hall, Exeter Hall, on the plan of those which were found so profitable and agreeable last year. The dates of these meetings, and the subjects discussed, will be as follows:—April 18: How far are the Disadvantages under which the Working Classes labour attributable to Causes within or beyond their own control? First speaker, Mr. John Bainbridge; chairman, the Right Hon. the Earl of Lichfield.—April 25: Would a Large Extension of the Franchise promote the well-being of all Classes of the Community? First speaker, Mr. Cyrus Symons; chairman, the Right Hon. Lord Lyttelton.—May 2: Is it the Duty and Province of the Government and Local Authorities to assist the Industrial Classes in providing themselves with Better Dwellings? First speaker, Hodgson Pratt, Esq.; chairman, A. H. Layard, Esq., M.P. The rooms will be open each evening at seven p.m. for general conversation. The chair will be taken at eight p.m., when the subject for the evening will be introduced; after which free discussion will be invited. Each person sending up his name to the chairman will be called on in turn, ten minutes being allowed to each speaker. No resolutions to be moved, nor votes taken.

The Artist Workman.

THE VALUE OF ART EDUCATION AS A MEANS OF INCREASING WAGES.

"It has been discovered," said Mr. Stewart, at one of the annual meetings of the Social Science Association, "that a public able to appreciate is as essential as are designers able to produce; but it is not yet felt that ignorance of art diminishes wages, and injures every woman's household. It is admitted that for decorators, pattern-drawers, lithographers, engravers, carvers, mould-makers, sign-painters, and the like, art education is valuable; but it is not yet believed that the basis of all art—a knowledge of form—is as valuable to the chair-maker, the tailor, the boot-maker, the glover, the hatter, the turner, the coach-maker, the baker, and the pastrycook. The man who can letter sign-boards earns better wages than he who can only white-wash ceilings; and the principal difference between the two is, that the one has cultivated his sense of form till it yields him so many shillings a week more than his neighbour, who has allowed his faculty to lie fallow. If it be admitted that forming the letter G upon a sign-board and forging a horse-shoe—that the forming of a vase-backed chair and drawing a 'pine' for a shawl-pattern—are precisely similar acts in different materials—that is, different developments of the same elements of form; if it can be demonstrated that what is called neat-handedness in artisans is only a clearer perception of that, little more or less, which constitutes the difference between clumsiness and elegance, and that these neat-handed tradesmen everywhere receive higher wages for their work; then it can be proved that this alphabet of the art—the knowledge of form—has a most important bearing on the wages, the comfort, independence, self-respect, social position, and public worth of the working classes."

Compare the position of the working man capable of producing, or even simply imitating the graceful and suggestive design which forms our illustration with that of the common labourer. It means not merely a difference of wages and comfort, but a difference of resources. The unskilled labourer will always be a labourer; but the skilled workman, possessing a knowledge of art, will gradually be enabled to procure the highest rate of wages obtainable in his trade, or to work his way into some other and more profitable occupation, in which there existed a demand for his services. His course would often be upward, seldom downward.

Dry Subjects.

Beauty itself is still in dispute. Nobody has defined it. The line of grace is, as yet, undetermined. Gibson's tinted Venus divides the opinions of all the art-critics. Who, then, shall tell us what is interesting? People are sensational to arrive at it; they plunge into melodrama to attain it. Political economy is a very great subject: it has changed the destinies of modern nations; but no writer, from Adam Smith to John Stuart Mill, ever made any fragment of political economy as interesting as Punch and Judy. What Englishman is there who does not or has not enjoyed the sight of the active hunchback scolding, chattering at, or banging his comical and vivacious companion? Poor Toby, too, touches the heart of all children. Yet there is as much interest in science as in comedy, when people are thoughtful enough or cultivated enough to see it. One may easily believe in Newton weeping for joy, when he saw some abstruse calculation come out which proved the truth of an unknown law. The dreary-looking columns of figures were as full of poetry as the verse of Homer. A mathematical figure, or a series of algebraical symbols, are, to those who understand them, as beautiful as a song. It all depends upon the bent of the mind. The step of Elssler, or the notes of Lind, charm only the cultivated. Political economy will one day be generally interesting, as the working class come to see and understand its applications. James Mill infused into it a bolder tone than Adam Smith; John Stuart Mill imparted to it a human element it never had before he wrote. Much depends upon the way of putting it. As Heine humorously exclaims:—

"When first my afflictions you heard me rehearse,
You gaped and you stared—God be praised 'twas no worse!
But when I repeated them smoothly in rhyme,
You thought it was 'wonderful!' 'glorious!' 'sublime!'"

This kind of change will come over the popular judgment of social science as general intelligence is diffused.

In Professor Fawcett's work on the "Economic Position of the British Labourer" are a series of ideas and principles, of the utmost importance and interest, now capable of being quoted by working men. The possibility of the labourer ceasing to work for hire is allnded to. This is almost the first admission of its possibility which we have seen. What a new horizon of industry is here opened! What utterly changed relations of society does this imply! Then poverty and serfdom will terminate. This change lies in the immediate future. We are rapidly moving towards it. Labouring for hire is coming to an end. Mr. Mill has foreshadowed it; Mr. Fawcett has admitted it; all Co-operation tends to it. Every week we are enabled to record the conversion of private manufacturing firms into Co-operative companies, and the rise of Co-operative manufactories, in which the workmen are their own employers. The change is coming even faster than workmen are prepared for it. At the present time the Society of Amalgamated Engineers might become possessed of great iron works, but their rules prevent them using their capital in this way. The workmen have not yet made the rules which will permit them to advance.

The aggregate land of the country is rapidly passing into the hands of a few proprietors. Only a century ago there were three times as many landholders in England as there are now. The British freeholder is dying out. The territorial aristocracy, which was once the mainstay of England, as it now is the mainstay of America, is ceasing. Property itself has changed character, as far as the people are concerned.

Primogeniture is beginning to be considered a national evil. At any rate, it is extremely questionable whether a man ought to be allowed to entail his landed property so that it cannot be sold, or divided equally among his children. If a landowner dies without a will—that is, intestate—the law acts on the principle of intestacy, and apportions the land to his eldest son. This locks up land. It prevents it coming into cultivation in the most efficient way. It tends to prevent the existence of a class of small proprietors, and keeps up a class of more dependent and less public-spirited tenant farmers. Nowhere is there so much thrift, prudence, industry, and self-respect to be found as among the small proprietors of European countries. It seems absurd to devote constant homilies to the inculcation of industrial virtues among the people, and withhold conditions which will produce those virtues without homilies. The principle of public economy is becoming a ruling principle. Changes in the law to promote it are inevitable. Waste, improvidence, inequality, social injustice, social neglect, privileges of rank, indefensible usages, however immemorial or time-honoured, all have to give way before public economy. If, for instance, Government can do nothing, or are unwilling to do anything towards creating peasant proprietorships, Professor Fawcett shows that it is bound to do nothing to obstruct their creation.

England is a rich country. It has enormous wealth. Every country on the face of the earth is in receipt of English capital. England supplied £13,500,000 to the Grand Trunk Railway of Canada, while the United States altogether scarcely subscribed £500,000. Thirteen millions from England to £500,000 from America is an amazing instance of commercial affluence. Since 1853 we have invested £43,000,000 in Indian Railways. Out of all this profusion of surplus wealth comes the moral impression that there

only wants a little more industrial sagacity and social science to place the "British Labourer" in a position of secure competence. These and many more lessons, not wanting in popular breadth and interest, are furnished in Professor Fawcett's small book on "Economic" Science.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

As the discussion at the last monthly tea-meeting of the Secretaries of London Clubs turned entirely on the subject I dwelt on in my last paper, viz., *How to deal with the Youths*, I cannot do better than mention some of the useful remarks and experience then afforded to the meeting, before resuming the notice of various Clubs more or less unsuccessful, commenced in a former number.

The chairman having inquired the views of each person present, in turn, as to the age at which they thought persons might be admitted as members without prejudice to the club, six representatives mentioned "eighteen," but four of them, admitting that applicants for admission constantly falsified their age, urged that measures should be taken to prevent any coming in who had not actually attained that age, either by requiring older persons to certify the fact, or by making the nominal age twenty-one. One secretary considered none should be admitted unless they had actually attained the age of twenty-one; another named twenty-two, and another urged twenty-three. Several maintained that none under twenty-five or thirty, even though admitted to the club, should be allowed to use the bagatelle-room, as, independently of the noise younger men made when playing, it had too often happened that youths came to a club, learned to play at bagatelle, became passionately fond of it, and then got into the habit of playing at public-houses, for money or beer. It was also recommended by most of those present that no persons under twenty-one should be admitted, if at all, without a recommendation, or (as at the Southwark Club) unless two adult members agreed to be answerable for his good behaviour. (This last suggestion carries us back to the admirable institutions of Alfred the Great, and has great virtue in it.) One speaker ably contended that it was really a question of good management, saying that men do not object to the company of *well-behaved* youths, but quite concurred in the exclusion of the latter from the bagatelle-room until their characters were comparatively formed—say, twenty-five years. In judicious management, wisely blending firmness and kindness, would be found, he thought, the solution of all these and similar difficulties. Most, however, agreed that men would not keep company with the youths; but the representatives from Camden Town and St. Bride's considered that grown men did not object to the company of youths as young as sixteen or eighteen. One speaker urged the great importance of not allowing any member under the age of twenty-five to be on the committee; otherwise, as was the case at one time in the club he belonged to, the youths might get completely the upper hand, and do great mischief. The representative from Chelsea (Mr. Taylor) said they admitted them at the age of eighteen, provided, as long as they were under twenty, some members of the committee took them under their special charge. At that club they had twenty-four on their committee, and four of them took it in turn to be there every night; hence such a thing as disorder and noise was quite unknown among them. He maintained that, unless youths are admitted as young as eighteen, they go to the bad before they are admitted to the club. Many youths who used to play bagatelle at beer-shops in the neighbourhood of this club never go there now, but play at the club instead, and without betting or noise. None, however, are allowed to play twice until all who wish it have a chance of playing once. The representative of another club urged that there was no possibility of keeping youths out of the bagatelle-room till they had reached a given age. The great point was to let them amuse themselves as they liked; but to be continually taking opportunities of leading them on to care occasionally for something higher and more improving.

I then dwelt on the original and fundamental idea of a Working Men's Club, viz., that of a society of grown men for promoting that social intercourse and pleasant fellowship among themselves which the wealthier classes get at each others' homes, or at their clubs, but which working men are driven to seek at the public-house. I urged that husbands and fathers of families, men of ripe years and experience, often wished for chat with one another on many subjects of interest, in discussing which they certainly did not desire the company of lads and youths as listeners. Of course, I fully recognised the vast importance of providing a place of resort for the latter, but suggested the various expedients mentioned in my last paper; and contended that where youths were admitted indiscriminately to a club, without any of those precautions, it might be doing a great deal of good in some other way, but it certainly was not answering the purpose for which Working Men's Clubs were and ought to be established. The secretary of the Southwark Club (Mr. Symons), in a very able speech, then summed up the discussion. He believed that if clubs could be formed and maintained such as I had described, to which none should be admitted under the age of twenty-five, they would be a very great success, and would meet an extremely urgent want. Perhaps they might be best supported in large towns if each trade had its own club. At all events, he much wished to see clubs that would really belong to, and be used by, grown men exclusively. He strongly confirmed, by various illustrations from his own experience, the statements made as to the absurdity of expecting grown-up men to talk familiarly with one another in the presence of youths. What they said would be sure to be misunderstood, or be repeated, perhaps misrepresented. Very likely it would be all over their workshop the next day, or they would hear of it in their families, perhaps in the streets. In every point of view, it was most unpleasant and objectionable to have lads listening to their talk. For these reasons he would like to see in every club at least one room where men could be by themselves. But he could not consent to exclude youths altogether. And in the present state of the movement, and of his own club in particular, he felt that he would rather labour to save those whose characters were not yet formed—who were under the age of twenty-five—than older men; for he had seen the wonderful good done to these young fellows by admitting them to that club. He would employ, however, various safeguards. He had got power from the committee to suspend any member guilty of disorderly conduct until the next committee meeting, and the youths knowing he had this power, now behaved much better.

(It was mentioned, by-the-bye, in the course of the evening, that the steward of the Holloway Club had the power entrusted to him of turning out any offender for the night, but had never had occasion to exercise it—partly, perhaps, *because* he had the power—partly, no doubt, because of his firm, yet genial, manner with the members.)

Mr. Symons farther mentioned that they had passed a rule making youths only "*associates*" until they attain the age of eighteen, so that they would have no power in managing the club, or rather mis-managing it, as had formerly been the case. He also suggested that, where there was a great demand for admission on the part of youths, the committee might require them to show a certificate from the secretary that they were in the habit of attending some class or lecture, and of conducting themselves respectably, before giving them a ticket of admission to the bagatelle-room. This, however, would require a great deal of tact and good management, but in some clubs he thought it would work well. He wished they were as fortunate as the members of the Chelsea Club in having so many staunch and competent members of committee to take it in turn to attend every evening, and so many popular gentlemen to help work the club and make it both pleasant and useful. They had only one of this class, their president, Mr. Seaward Tayler, to whom they were under the greatest obligations; but he lived a long way off, and of course could not be very often there.

Commending the above remarks, and those offered in the last number of the Working Man, to the thoughtful consideration of all the managers and friends of Working Men's Clubs and Institutes in dealing with one of the gravest subjects that can engage their attention, I propose resuming the notice of various failures in different parts of the country.

* Continued from page 227.

The New Artificial Stone.

In an age when large public buildings are either being, or in contemplation of being, constructed, not only in the British metropolis, but throughout these kingdoms, it is of the greatest importance to have at our command a material possessing, in high combination, the properties of beauty, strength, and durability. This is the case with the new patent concrete stone invented, after many years of study, toil, and experiment, by Mr. Frederick Ransome. Architectural taste has proclaimed its beauty; practical experience has pronounced its strength to be superior to that of the best product of our Portland quarries; chemistry has declared that it will rival in endurance the old unchanging mortar of the Romans; whilst natural philosophy has pronounced it the *ne plus ultra* of artificial stones. An invention thus spoken of, in connection with one of the most important of the constructive arts of civilisation, can hardly be too widely made known.

The various compositions which have, from time to time, been invented to take the place of natural stone, by substances which should possess the advantages of either being less expensive, more convenient, stronger, or more durable, than any material that can readily be obtained in the locality where stone is required, represent a considerable numerical amount; but the artificial stones hitherto used may, with sufficient clearness, be comprehended under one of these three heads—Terra-cotta, Cements, and Siliceous Stone. The *first* consists of certain manufactures of plastic clay, burned in a kiln; the *second* consists of various manufactures of limestone containing foreign ingredients of such a description that, when converted into lime by burning, the lime thus operated upon possesses, when wetted, the property of setting gradually and firmly; the *third* until recently has been obtained by burning in a kiln sand and other substances, moulded with a solution of silicate of soda, which is converted into a kind of glass, firmly connecting the particles with each other.

Besides these there are the different *plasters*, which, however, being little exposed to the trying effects of weather, may here safely be left out of consideration.

Terra-cotta, like many other of the inventions of man, has its advantages and its disadvantages. The former are its cheapness, abundance, and the universal distribution of the clays of which it can be made; the facility with which it can be moulded to any required form; and its usually agreeable colour when uninjured by long exposure to the variations of the atmosphere. These may be regarded as the sum of its advantages. Its disadvantages are, the uncertainty which attends its use, owing to the great and unequal contraction of all clays in burning; its want of resistive power in repelling damp and frost whenever there is the slightest flaw, whether produced before or after burning; its brittleness and want of strength, and its liability to be covered with a disagreeable green vegetation in damp air after a few years' exposure to the weather. For dry climates it is better adapted than for wet.

Cements, no matter of what description and how called, when intended for building purposes, are all similar in their nature. The advantages of this material, when used as an artificial stone, are—its cheapness where made, and its facility of transport; its not requiring the kiln, but setting at once without contraction; the case with which it can be moulded, and its great strength when well made. These are its advantages. Its disadvantages are, that it cracks and peels off when subjected to the influence of frost and damp air; the uncertainty of its manufacture, some specimens yielding a much harder, better, and more lasting stone than others, without any apparent reason; and its sharing in the offensive green vegetation of the terra-cotta. Notwithstanding these drawbacks, however, it is well adapted for making concrete.

Siliceous stone, or patent concrete stone, as now manufactured by Mr. Ransome, has the advantages of being extremely uniform in its texture; of being made of material abounding in Nature, and almost in every locality; of being capable of being imme-

diately manufactured on the spot where it is required to be used, and of the exact forms desired; of being alike applicable to solid constructive masonry, and to the most elaborate and beautiful embellishments; of resembling, both in texture and appearance, the best qualities of our natural stone; of having the capacity of being produced to any shade of colour; of there being no waste incurred in its manufacture; of giving the power of being formed into stones hollow as well as solid; of being totally unaffected by the acid vapours of manufacturing towns, or the changes of the atmosphere; of increasing in hardness, and consequent durability, with the lapse of time; and of having great strength, which has been proved to be superior to that of Portland stone, or, in fact, to any of the natural stones with which it has been tested. These are the advantages of Ransome's patent concrete stone, and its disadvantages must now be spoken of as things *of the past*. These *were*—its cost, which was greater than for either of the other kinds of artificial stone, but which, considering its overwhelming advantages, could hardly be estimated against it; and its being subject to a white efflorescence of salt, which has now been successfully obviated.

As this stone has already been extensively employed in the several stations of the Metropolitan Railway, in the London, Chatham, and Dover Railway Extensions, and elsewhere, we may be excused for any curiosity we might exhibit in desiring to be made acquainted with the nature of the ingredients of which it is composed. It was in 1856, whilst pursuing other experiments, which had reference to the *preserving*, and not to the *making*, of stone, that Mr. Ransome hit upon his discovery. Like Palissy, the potter, he had laboured long, and was at length successful. After this he was very soon able to satisfy himself that two solutions—namely, silicate of soda or potash, and chloride of calcium, common sand, chalk, clay, and other almost valueless earthy or mineral matter—could readily be converted into a useful and durable material; and accordingly, in 1861, he obtained his patent for the manufacture of stone by such means. The process of his manufacture has been thus described by himself to us:—

"The sand, chalk, or other mineral substance, is intimately mixed with its proper proportion of a solution of silicate of soda. This is effected in an ordinary pug-mill, and the mixture, which is thus rendered of a plastic consistence, is either pressed into blocks or moulds, or can be rolled into slabs, or forms as may be desired, and is afterwards either saturated with, or immersed in, a solution of chloride of calcium, when a double decomposition of the two solutions employed (the silicate of soda and the chloride of calcium) immediately takes place. The silica combines with the calcium, and at once forms an insoluble silicate of lime, firmly enveloping and cementing together all the particles of sand, chalk, or other mineral of which the stone is composed; whilst, at the same time, the chlorine combines with the soda, and forms chloride of sodium, or common salt, which is easily removed by subsequent washing."

Such is the simple process by which this now celebrated material is produced, and such are the simple ingredients of which so much artificial beauty, strength, and durability are composed. The cost of its production in plain blocks or slabs, in most cases, is *less* than that at which natural stone can be obtained; whilst for mouldings, or any kind of ornamental masonry, the additional labour in working the material is so trifling as scarcely to be worthy of notice. The principal item of expense in such work is the preparation of the necessary moulds; but as these may be made either of wood or of plaster of Paris, they need by no means be costly; and where a repetition of the same article to any considerable extent is required, the proportionate cost of the mould chargeable upon each article would scarcely be appreciable.

Here, then, is a most useful composition, which bids fair to rival or supersede to some extent the uses of both stone and bricks for building purposes. It has neither to be dug nor quarried from the bowels of the earth, but is made upon its surface, of what may be almost deemed as the refuse of Nature; and, by the practical application of a little chemical knowledge, that which has hitherto been held as valueless is at once converted into the means of supplementing both clay and stone in the construction of our towns and cities. For such purposes timber may be said to have failed to supply us long, long ago; superficial clays may, in the course of time, be worked out; and stone has, in some parts, never been abundant. In London this has especially been the case, and hence the vast conglomeration of bricks and mortar which the walls of that city present to an eye unused to such exteriors. This, however, need no longer be the case. The inventive and applicative genius of man seems to be limited only by the term of his existence. Even the powers of the natural world would almost seem to have ceased to contend with him. In the locomotive he has beaten the speed and the endurance of the swiftest and the strongest of animals; in the flash of the telegraph he has become the co-equal of the lightning; and in the invention of this new "concrete" he has surpassed the beauty, the strength, and the durability of the natural stone. In it he has set the influences of time and weather alike at defiance, and can now erect monuments equally vast, solid, grand, strong, and enduring as those Pyramids, which, for 3,000 years, have flung their silent shadows over the desert sands of the Egyptian land.

THE SONS OF LABOUR.

Apollo's lyre hath oft been strung
To kings' and princes' glory;
The poet's voice hath pæans rung,
To warriors grim and gory.
The god of love, the god of wine,
The world for aye is praising;
To woman—more than half divine—
The goblet ever raising.
But I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour:

Our hero be the working man,
No matter age or station,
Who ever stands among the van,
To help himself and nation;
Whose hand, or brain, or both combined,
From duty never falters—
The man of heart, and soul, and mind,
Who never shirks or palters.
Yes, I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour.

Who raised our empire to its height?
Earth's rarest Queen—who made her?
Those men, who fought no bloody fight—
The toiler and the trader.
The field of commerce is the sphere
Where most she stands the winner—
Thanks to her miner, engineer,
Her weaver, and her spinner.
Yes, I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour.

The nations that by conquest rose,
By conquest oft were humbled;
On ill-got gains they dared repose,
Till native vigour crumbled.
But Britain's greatness, surer laid,
Hath stood the shocks of ages,
And everlasting record made
On History's golden pages.
Yes, I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour.

In darker days 'twas thought unwise
To give the people learning,
Lest they their rulers should despise,
And honest toil be spurning.
But mental light new worth infused,
And, in his better hour,
The working man has fairly used,
And not abused his power.
Yes, I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour.

The working man hath done his part
Both honestly and boldly;
He hath a loyal, loving heart,
Then never treat him coldly.
Ay, trust him still, and trust him more,
And you shall see him growing
Still sounder, better than before,
With highest impulse glowing.
Yes, I another strain would wake—
Join with me, friend and neighbour—
For truth and for old England's sake,
Let's sing the Sons of Labour.

John Geo. Watts.

Government Life Insurance.

Of the many services which Mr. Gladstone has rendered to the working men of England, probably none will hereafter be more honourably associated with his name than the two measures, one of which constituted the Government the Bankers of the People, and the other which placed within the reach of the provident the advantages of Life Insurance based on the absolute security of the national credit.

We do not propose to speak of the first of those measures now, further than to congratulate those for whose benefit the Savings Bank Act was devised on the splendid success which has been achieved. Since the Act has been in operation, an aggregate sum of £13,000,000 has been lodged at the various Money Order Offices throughout the kingdom. Of that amount, about £6,000,000 have been withdrawn, leaving at the present time on the books of the Postmaster-General, £7,000,000 of money, bearing interest to some 650,000 depositors, each of whom is thus constituted a small capitalist whose ten guineas will represent no unimportant addition to the collective wealth of the nation.

These facts conclusively establish the truth of Mr. Gladstone's belief, that an intelligent artisan or labourer is only improvident when he is uncertain of the safety of such of his hard-won earnings as he might be able to set aside.

Having, as it were, paved the way for the introduction of his second measure, Mr. Gladstone then invited the whole working population of England—a vast majority—to make further provision for themselves and those who were dependent upon them. With earnest eloquence he warned them that the operations of Friendly Societies, although legitimate enough in their proper sphere of providing sick-pay in illness—that is, *if honestly managed*—are not generally conducted on principles which render them safe investments for provision in case of death.

The advantages of life insurance only need to be thoroughly comprehended to make every prudent man determine to participate in them. No other mode of providing for the future can be half so efficacious; for, let a man be ever so frugal in order to put by something regularly in a savings bank, the transaction ends with his death, when all that he has saved, with the interest thereon, represents exactly the sum to which his survivors will be entitled. If he is blessed with long years of life, he will have done well for himself; and if everybody could reckon upon living the full term of threescore and ten, savings banks would answer every purpose. But, inasmuch as a thousand unforeseen contingencies may arise to break the thread of existence, savings bank investments of themselves involve considerable elements of chance. Now, by life insurance this risk is avoided, or rather it is distributed over so large a number of lives that, practically, in an individual it is exchanged for absolute certainty.

Take for example the case of, say a compositor, thirty years of age, who out of his weekly earnings is able to save one shilling a week, which he puts into a savings bank. At the end of ten years his deposits, with interest, will amount to about £30, and, at the end of thirty years, he will have saved altogether something like £100. This is supposing he lives so long; but if he should die sooner—and the probabilities are greatly against him—the sum will, of course, be diminished proportionately. Now, it requires little demonstration to prove that, if by paying his weekly shilling in the shape of a premium for an insurance he could secure the *right* to £100 for his family, let his death happen as soon or as late as it might, there would be clearly a substitution of *certainty* for *chance*.

Of course, to those who may possibly have no object in view in making provision for others after their death, but who may desire to put something by for a rainy day of ill-health, or want of employment, or for temporary investment only, the savings bank is advantageous in every respect; and it is useful, moreover, in connection with life insurance in the way we shall hereafter advert to. The two things are not antagonistic, but are perfectly harmonious in their several operations.

Life insurance enables the man whose earnings will cease on his death to give some of the benefits of those earnings to his family after his

death; and, moreover, it gives to the family of the man who dies early some of the advantages which are enjoyed by the families of those who live for many years.

To the multitudes of strong, active, and intelligent young men—the bone, sinew, and muscle of England—life insurance offers particular attractions, inasmuch as the premium rises with every added year of life. The man who insures his life at twenty years of age, pays about 10s. a year less to secure £100 than is payable by the man who begins to insure in his thirtieth year. The benefits of an early insurance are very great, because, in the first place, as the payments of premium are prospectively distributed over a great many years, the annual payment is thus made smaller during early life, when the cost and care of a family are heaviest; and, secondly, because every man should endeavour to have his life insured whilst his health is good, and before the influence of his occupation, or any other cause, has had time to weaken his constitution, and lessen his chances of acceptance. Many men, who might easily have insured their lives at twenty years of age, have found, at thirty, that they have lost their opportunity.

Every insurance office bases its transactions upon what is called a "Life Table"—that is, a kind of scale showing the rate of mortality and the duration of life at each year of age; and the safety of the office as much depends upon the reliability of its Life Table as that of a ship upon the accuracy of its compass.

Most opportunely for his purpose, Mr. Gladstone was provided with the most perfect instrument wherewith to direct the progress of a life insurance office that had ever been constructed. The English Life Table, based upon the observations of the recorded deaths of 6,470,720 persons, during seventeen years, and of the results of the two census enumerations of the living in 1841 and 1851, was published by the Registrar-General of England in November, 1864; and thus supplied the most accurate estimate of the probabilities of life amongst all classes of the English population that could be obtained.

After due consultation with those who were qualified to advise in such a matter, Mr. Gladstone adopted the English Life Table as the basis of his new adaptation of life insurance to circumstances of a somewhat novel character. With a unanimity which ought not to be forgotten, the Bill for setting the machinery in operation was passed into law, and to the Post Office department, which had so well fulfilled the duties imposed on it by the Savings Bank Act, was confided the charge of the Government Life Insurance business.

Thanks to the administrative talent and ability of Mr. Scudamore, the assistant secretary of the Post Office, the necessary forms requisite for proposals and acceptances, together with lucid explanatory statements of the proposed objects and their mode of accomplishment, and tables of the various rates of premium, were all prepared without delay. The Post Office announced that proposals would be received in April of last year, and forthwith published a list of those Money Order Offices in such towns as were first selected for the receipt of proposals. In the twelve months which have since elapsed the list of Money Order Offices where life insurance may be entered upon has been extended to almost every town in England, and the different postmasters have been supplied with the means of disseminating to the utmost degree information on all points connected with the subject.

Confidence is notoriously a plant of exceeding slowness of growth amongst all classes of our countrymen; and, bearing in mind the difficulty always attendant upon the establishment of any new system of things, it affords strong testimony to the general soundness of the principle which underlies Mr. Gladstone's plan, that there have been nearly 800 policies of insurance issued by the Post Office since April last.

The granting of annuities forms also part of the Government measure, and about 200 of such annuities have already been contracted for.

There is little doubt that as soon as the working classes become thoroughly acquainted with the advantages which are now brought to their very doors, the business of the Post Office Insurance Department will grow with increasing rapidity.

And we are so entirely convinced of the boon which Mr. Gladstone's measure offers to the less wealthy portion of the community generally, that we shall endeavour, in a subsequent article, to particularise some of the many forms in which the thrifty man may avail himself of the opportunity to provide "for his own, and specially for those of his own house."

"The habit of economy once formed,
'Tis easy to attain to prosperous things.
And though a sudden sickness dam the stream,
And cut off thy supplies, thou shalt lie down
And view thy morrows with a tranquil eye;
Even benumbing age shall scare thee not,
But find thee unembarrassed, and secure
From all the penury and wretchedness
That dog the footsteps of improvidence."

Facts and Memoranda.

New Boring Machine. — The important mining district of Low Furness has just had introduced into its works a steam boring machine, that will entirely supersede the old and laborious system of hand boring.

Society of Arts Prizes.—The Society of Arts, not deterred by the apathy of the working classes to its art-workmanship competitions, has determined to increase the temptations to those whom it is intended to benefit, both as affects the arrangement of classes and the apportionment of prizes. Publication of successful works is to be on a greater scale than before, and to include the probability of transmission to Paris on the forthcoming grand occasion.

A beautiful variety of ornamental glass is composed as follows:—Sand, 250 parts; carbonate of soda, 100 parts; carbonate of lime, 50 parts; bichromate of potassa, 40 parts. This glass melts with perceptibly greater difficulty than that without the bichromate; it is of a deep green colour, and full of small spangles, crystals of oxide of chrome, which sparkle with a brilliancy inferior only to the diamond.

The mean of the results of different experimentalists shows that the quantity of carbon evolved by respiration from an adult during twenty-four hours is 5,963 grains, whereas the weight of carbon contained in the food consumed during the same period varies from 3,000 to 4,800 grains. It has been deduced from this fact that carbon is actually formed or secreted by animals. Experiments were tried with a mouse, and the same inference was drawn from the results.

Glass Mould Boards for Ploughs.—A novel idea has been started in America. Some enterprising inventors are making mould boards for ploughs of glass. It is stated that they have been tested on the prairies with practical success. We have glass rollers for mangles in England, and, considering the peculiar characteristics of the material, the only wonder is that it has not been more generally utilised. It is well adapted for many constructive purposes.

Prize for Mechanical Cultivation.—A noteworthy effort is being made in the arrondissement of Compiègne, in France, to induce the application of the highest mechanical skill to the cultivation of the soil. A number of proprietors and farmers have subscribed to offer a grand prize of 100,000f. (£4,000) to the inventor of a system of mechanical cultivation much more economical than those at present in operation.

New Mordant for the Aniline Dyes.—It has been found that a permanent and beautiful colour may be imparted to fabrics of flax or cotton, by means of an aniline dye, if they are previously impregnated with a solution of tannin in alcohol. A most brilliant appearance is given to paper if, before applying the solution of tannin, it has been coated with albumen. As vegetable parchment comports itself with regard to the aniline dyes like silk or wool, it does not require to be treated with the solution of tannin.—*Scientific Review.*

Brush Trade. Bristles.—The demand for bristles is daily increasing, while the supply remains stationary. Any new material which will take the place of them would be a great boon to the trade. It is true that many fibres have been, from time to time, introduced into the trade; but only one is used in any large quantities, and that only for very common work. Nothing has hitherto been discovered which can be made use of as really taking the place of bristles in the manufacture of painting brushes, which require the peculiar soft termination of the bristle (technically called the "flag"), causing the brush to lay on the paint evenly.

Premium for a Water-Meter.—A premium has been offered by the Industrial Society of Amiens, in the following terms:—The proprietors of steam-engines are in want of a water-meter which will indicate exactly the quantity of water injected into the boiler, whatever be the pressure. This apparatus must be one easily set up, not subject to get out of order, and capable of registering the quantity of water to within two per cent. of the actual volume. It is not a description that the society wishes for, but an apparatus in working order, on which experiments can be made; and, if a water-meter be presented appearing to be of practical utility, the society will use every effort in its power to promulgate the use of the contrivance. The meters to be experimented on should be sent to the office of the society before March 1st, 1867.

Things Talked About.

Mr. Peabody has replied with modest dignity to the Queen's letter. The correspondence is historical, and we should do the great American an injustice did we not quote his letter in full:—"Madame,—I feel sensibly my inability to express in adequate terms the gratification with which I have read the letter which your Majesty has done me the high honour of transmitting by the hands of Earl Russell. On the occasion which has attracted your Majesty's attention of setting apart a portion of my property to ameliorate the condition and augment the comforts of the poor of London, I have been actuated by a deep sense of gratitude to God, who has blessed me with prosperity, and of attachment to this great country, where, under your Majesty's benign rule, I have received so much personal kindness, and enjoyed so many years of happiness. Next to the approval of my own conscience, I shall always prize the assurance which your Majesty's letter conveys to me of the approbation of the Queen of England, whose whole life has attested that her exalted station has in no degree diminished her sympathy with the humblest of her subjects. The portrait which your Majesty is graciously pleased to bestow on me I shall value as the most precious heirloom that I can leave in the land of my birth, where, together with the letter which your Majesty has addressed to me, it will ever be regarded as an evidence of the kindly feeling of the Queen of the United Kingdom towards a citizen of the United States. I have the honour to be your Majesty's most obedient servant, George Peabody." A movement is on foot among the merchants of the City to invite Mr. Peabody to a public dinner, before his departure for America.

The "partnership of industry," instituted by Mr. Greening, of Manchester, among his workmen, is extending its field of operation. Co-operative collieries and brickworks at South Buckley, Flintshire, are to be conducted on the same principle. Mr. Greening has issued a circular, in which he gives the following results of some of the industrial partnerships:—"Messrs. John Crossley, Sons, and Co. (Limited), carpet manufacturers, of Halifax, are paying 15 per cent., and their shares, with £10 paid, are selling for £17 each. Messrs. Henry Briggs, Sons, and Co. (Limited), of the Whitwood and Methley Collieries, Yorkshire, have worked six months on the new system, paid an *ad interim* dividend of 10 per cent., and their new shares are being issued at £1 premium. They show an increased production, and other good results. Messrs. Greening and Company (Limited), manufacturers of iron gates, fences, &c., of Manchester, I have already reported upon, and need only add, that shares in that company cannot now be had."

Stimulated, we suppose, by the savings bank clause of the Franchise Bill, and unable to see why any other evidence of provident habits should not establish a similar claim, some of the members of Co-operative societies have originated a movement, having for its object the enfranchisement of holders of £50 capital in Co-operative Societies, which was inaugurated at a meeting of delegates, held at Halifax last week. Twenty-nine societies, having a capital of £400,000, were represented.

Last week we illustrated the manufacture of tin plates. Some interesting statistics on the subject have since been made public. In the last seven years the annual average value of tin plates manufactured in the United Kingdom, and shipped for exportation, amounted to more than 1¼ million sterling. In 1864, which is the latest yearly account completed, the total declared value was £1,263,246, represented by 1,002,947 cwt. of that description of merchandise. Considerably more than a moiety of the total was sent to the United States. France took 49,468 cwt., of the value of £59,411, and Italy 47,305 cwt., representing a value of £59,402. More than 36,000 cwt. were sent to China, and over 17,000 cwt. to Japan. Our own British North American colonies took 36,346 cwt., valued at £49,516. The shipments in 1865 were of the value of £1,482,766, being an increase on those in 1864 of £219,520, the greater portion of such advance being due to renewed demands from the United States.

The members of the Sheffield Filesmiths' Union have decided on submitting the question of the use of machinery in file-making to the arbitration of an equal number of employers and workmen. If we may judge from the temper of some letters which have appeared in the local journals, the filesmiths are beginning to find out that, if the introduction of machinery is too determinately opposed, the result may be that the file trade will altogether desert the town. One writer, who signs himself "A Filesmith," says: "With machinery, Sheffield and Rotherham would be united, and neither forger, grinder, cutter, nor hardener, would be worse off. More shopkeepers would be wanted and consumers benefited, and men would be paid for superintending machines; and it does not matter what dust may be thrown in the eyes of the public, every *experienced, practical* man, who has seen file-forging and grinding in Manchester, *knows* that it is perfectly successful."

The Executive Committee of the Operative Bricklayers' Society have published the result of their operations since the institution of the society eight years since. An increase of wages and an actual reduction of time in

thirty-two English and two Scotch towns are claimed. In those towns the number of resident bricklayers is 2,517; and the whole of these men have received and enjoyed an average advance of 3s. 6d. per week, and a reduction of two hours per week in their working time, for an average of no less than forty-four weeks one day to each town. Another, and a very striking way of putting the matter is, that these 2,517 men have gained in actual money, in forty-four weeks, no less than £19,836 14s. The committee says: "This total will go to benefit the entire trade of the whole of the towns, as a diffusion of capital in the poorer districts is sure to do; adding comforts to homes most needing them, and diffusing general prosperity to the extent of the increased pay of the more necessitous of the toiling population."

The Yorkshire Penny Savings Bank has opened seventeen new branches during the past year, and 192,841 deposits were made in the same period. These are interesting facts.

The Kidderminster weavers differ in opinion from the operative bricklayers respecting strikes. The power-loom and other carpet weavers have held a meeting of their association. The chairman said, and the meeting concurred, that "their object was to have an absolute control over the funds, not to fritter them away in strikes, but to wield them in sending any surplus labour that might arise out of the country. He trusted they were all convinced that any reasonable object could be gained without resorting to strikes; and also that everything might be lost by striking."

Several interesting presentations have lately been made. The valuable services of Mr. James Smith, as secretary to the Manchester and Salford District Provident Society during the prevalence of the cotton famine, has been signally acknowledged by the presentation of a testimonial (consisting of a purse of gold and a silver ink-stand), which took place in the Council Chamber at the Town Hall, Manchester. Other presentations were those of a testimonial by the Northumberland Miners' Association, to Mr. and Mrs. Herdman, of the Stickley Farm, near Shankhouse Pit; also to Mrs. Herdman, of Horton Farm, for their great kindness to the miners of Cramlington during the late strike at that colliery. The gift to Mr. and Mrs. Herdman consisted of an electro-plated coffee and tea service, and that to Mrs. Herdman, Sen., of a silver cup. It was also agreed, by the late workmen of Cramlington Colliery, to present a similar coffee and tea service to Mr. and Mrs. Jamieson, of the "Astley Arms" Inn, Seaton Delaval, for their great liberality and kindness during the many years that the workmen had held their meetings at the "Astley Arms." We record these presentations as pleasing instances of a kindly and friendly spirit.

We have noticed more than once the enterprise of foreign engineers, and how briskly the manufacturers of machinery are competing with English firms. And now we get from Mulhausen, in Prussia, an interesting account of an industrial festival given by the great iron and cotton firm of Kœchlin Brothers, to their multitudinous operatives, *apropos* of the thousandth locomotive launched from the forges of that establishment. A gold cup was presented by the artisans to their employers, and the number "1,000" was emblazoned in every shape around the festive Walhalla.

Mr. Ablett, of Wood Street, who several years since suggested the establishment of a museum of patterns for the encouragement and improvement of Coventry manufactures, is about to make a beginning by taking premises, with the intention of forming a Co-operative company, for the carrying out the idea on a large scale. The proposed museum promises to be of great value to the town.

A little pamphlet, "Local Museum Notes," edited by the Treasurer of the Wimbledon Local Museum, gives some useful instructions, derived from experience, as to the formation of similar societies. Collectors of natural objects are to be found everywhere; and their labours would be facilitated and their pleasure enhanced if they were enabled to write the result of their researches, and communicate their experience to others similarly engaged. The Wimbledon Museum contains the results of researches within a radius of five miles of the parish church, and a similar area is recommended for others; but of course that must depend, in a great measure, upon the character of the locality.

A Manchester scavenger and remover of manure has been sent to prison for a month for assaulting another man, who was willing to work when the majority of the men similarly employed were on strike. Mr. Flowers, the magistrate, threatens a much severer punishment should other cases be brought before him.

Co-operative Intelligence.

Hurst Brook.—The nineteenth quarterly report of the Hurst Brook Industrial Co-operative Society (Limited) shows that the sales during the quarter amounted to £466 6s. 2½d., being an increase of more than £100 over last quarter's receipts, and £78 6s. 9½d. more than any preceding quarter, whilst thirty-two persons had been enrolled as members of the society. At the usual quarterly meeting it was decided to pay a dividend of 1s. 4d. in the pound on members' purchases, and 8d. on non-members'.

Accrington and Church.—The twenty-third quarterly report of the Accrington and Church Industrial Co-operative Society (Limited) shows that the receipts for goods amount to £9,700 12s. 6½d., being upwards of £400 more than the receipts for the previous quarter, and a net profit realised amounting to £873 8s. 0½d., which, after allowing the usual amount for depreciation and educational purposes, enables the committee to declare a dividend of 1s. 11d. in the pound on members' purchases, and remain undivided £4 15s. 4½d. The branch shop in Birch Street is now opened, and is expected to be of great benefit to members.

Dumfermline.—The following is extracted from the nineteenth quarterly report of the Dumfermline Co-operative Society:—"At the beginning of the quarter the number of members was 612, and the amount of paid-up capital £1,750 17s. 5½d. The number of members is now 654, and the amount of paid-up capital £2,051 14s. 5½d., which is an increase of 53 members, and an addition of £300 17s. 5¾d. of capital. £3,689 10s. 4½d. has been drawn for goods during the quarter, which is £117 3s. 10d. more than was drawn last quarter. The amount to divide, after paying or providing for everything required by the rules, and setting aside ten per cent. to the building fund, is £238 3s. 6½d., which gives a dividend of 1s. 4d. per pound to members, and 10¾d. to non-members."

Wigan. Hindley Friendly Co-operative Society (Limited).—The thirty-second quarterly report of this association shows that during the past quarter the sales amounted to £2,582 0s. 2d.; the deposits, to £480 17s. 3d.; and the amount withdrawn, including interest and dividend, to £206 10s. 2½d., thus leaving the net amount to credit of members £5,574 2s. 5½d. The profits disposable amounted to £222 4s. 3½d., the dividend to members being 1s. 4d. in the pound, and to non-members 10d. in the pound. Forty-nine members have joined during the quarter, and eight have withdrawn, thus leaving an increase of forty-one upon the previous quarter. The New Springs Branch Store has fairly commenced business, and the sales up to the close of the quarter amount to £222 13s. 9d.

Rochdale. The Equitable Pioneers' Society (Limited).—The eighty-fifth quarterly report shows continued progress on the part of the society. The total amount of cash received for goods sold during the quarter is £57,317 4s. 11d., being an increase of £12,266 11s. 6½d. when compared with the corresponding quarter last year. The profit to divide is £7,734 14s. 10d., which, after allowing £255 14s. 2½d. for depreciation of fixed stock, and £163 14s. 7d. for educational fund, will allow a dividend of 2s. 6d. in the pound to members. During the quarter the new branch store at Buersill has been opened nine weeks, and the total cash received is £2,373 1s. 1d., being an average over £263 per week.

Upper Mill, Manchester.—The twenty-second quarterly meeting of the Upper Mill Industrial Co-operative Society (Limited) was held in the upper room of the store on Tuesday evening, the 3rd inst., John Challoner in the chair. The report stated that the building and fixed stock capital was £1,022 15s. 1d.; number of members, 189; members' claims, £983; receipts from sales, £1,133 2s. 10d.; profits, £131 10s. 7½d., which allowed a dividend to members of 2s. 2d. in the pound, leaving a surplus of £12 6s. 11½d. for depreciation fund.

General Information.

CLUBS AND INSTITUTES.

St. Andrew's Working Men's Association, Plymouth.—From the fifth annual report of this association, we learn that the number of members at present in the association is very satisfactory, and the tone of the association generally is such as to lead the committee to indulge in anticipations of even greater success in the coming year than has yet attended it since its formation. The average monthly attendance during the past year was about sixty-three, and the number of men who, during that time, have taken a share in the benefits of the association, was over 250. The number at present on the register is 100, and this number is steadily increasing. The committee perceive, with peculiar pleasure, that the class of men who are now forming the association are of maturer years and larger experience than that of some former sessions.

Southwark Working Men's Club and Institute.—With respect to the admission of youths as "associates," the honorary secretary of this institution writes:—"We take them at eighteen; but they have first to obtain the signature of two members. If such members continue to support them, they remain until twenty-one, when they take the full privilege of the club. It is understood they are admitted, on sufferance, to attend general meetings, but cannot vote, but may speak, by consent of the chairman. They sit away from members by themselves."

Hanley.—At a recent tea-meeting here for promoting the interests of the Working Men's Reading-room, the chairman read over the list of the newspapers and periodicals taken, observing that the members also had the advantages of the library, which contained 4,200 volumes, and reminding them that the room was their own, and that all they had to pay was one penny a week. The room had been provided entirely for the working men, and there was no town in the Potteries in so good a position in that respect.

The West London Working Men's Club Company has just been established for purchasing the lease of the premises, No. 73, Great Titchfield Street, and the hall at the rear, together with the furniture and fixtures belong to the All Souls' (St. Marylebone) Working Men's Club and Institute, and for letting on hire the same hall and premises, together with the furniture and fixtures therein, for gain; and also for promoting the objects of the All Souls' (St. Marylebone) Working Men's Club and Institute. The premises proposed to be purchased are well adapted for a working men's club, there being ample room and accommodation; and there is no doubt that, by judicious management, the club would be highly successful, as proved by the fact, that during the time it has been opened—about two years—upwards of 2,000 working men have been enrolled as members. Certain privileges will be conceded by the All Souls' Club to shareholders, and priority will be given to applications for shares from members of the club, and from working men generally. Nearly 200 shares have already been applied for by members of the All Souls' Club.

Westminster Working Men's Club.—On Friday, the 13th inst., the members of this club took possession of their newly-erected premises in Old Pye Street, the Duck Lane building having been required for the Westminster improvements. The new building consists of a club and lecture-rooms, and of a model dwelling-house. The reading-room is provided nightly with six copies of the evening papers, in addition to seven weekly papers, twelve monthly magazines, and a library of 500 volumes. There are educational and other classes three times a week, fortnightly lectures, &c. There are also four benefit societies in connection with the institution. The club affairs are managed by a committee and secretary chosen from the members themselves, Miss Adeline Cooper merely acting as treasurer. The subscription is one halfpenny per week.

Volunteer Club at Redditch.—On the 3rd and 4th inst. two conversazioni were held at the National School-rooms at Redditch, for the purpose of aiding the funds of the Club and Reading-room established by the volunteer rifle corps of that locality. During the whole of Wednesday there was an exhibition of valuable works of art and specimens of natural history, generously lent by the inhabitants of the neighbourhood. On the evenings of both days crowded audiences were instructed and entertained by the delivery of addresses, excellent music by amateurs, and scientific experiments of the highest interest. The inaugural address was delivered by the Rev. H. Solly, of the London Working Men's Club and Institute Union, the chair being filled by Victor Milward, Esq. We understand that the volunteers are desirous of extending the advantages of this valuable institution to the working classes of the neighbourhood generally, and we hope soon to learn that this desirable object has been carried out.

STRIKES AND WAGES.

Effect of Irish Emigration on Wages.—The rapid increase of emigration from the southern counties of Ireland is producing a result at which the labouring population cannot complain. The wages for farm labourers during the past ten days attained the highest figure ever known in Kerry—12s. to 15s. a week with board. In many parts of the county of Cork the rate is 10s., and as emigration continues as brisk as ever, labour is likely to command this price very generally during the ensuing month. For twenty years there has not been such an emigration from the port of Drogheda as at present.

Strikes for advanced wages or reduction of hours of labour, or both combined, have taken place among the carpenters and joiners of Inverness, Leek, Rugby, Grimsby, Darlington, and other places; also among the bricklayers of Middlesbro', the Huddersfield plasterers, and the colliers at Tenby Grange, Thorncliffe, and other pits.

The strike amongst the millmen at Consett, at Messrs. Bolckow, Vaughan, and Co., Middlesboro', and Messrs. W. Whitwell and Co., South Stackton, which has now continued for several weeks, has not yet been brought to a close. The same may be said of the strike of puddlers at Elscar Ironworks.

An increase of wages has been obtained by the joiners of Bishop Auckland, the London deal furniture makers, the furnace-men at Cargo Fleet, and the bricklayers and labourers of Burton.

Movements in favour of an increase of wages have been commenced by the iron ship-building trades on the Tees, the painters of Newcastle, the London carpenters and joiners, and the Birmingham tailors.

INDUSTRIAL EXHIBITIONS.

Devon and Cornwall Working Classes' Industrial Exhibition.—The recently published report of this exhibition states that the proceeds have enabled the committee to pay all demands on their funds, give a large amount of money in prizes, and divide a small balance among the Plymouth and Devonport hospitals,

and the working men's associations at St. Andrews, Shaftesbury, and Devonport.

City of London Working Classes' Industrial Exhibition.—Upwards of 1,500 articles have been adjudicated upon. Of these 510 were sent in by amateurs, 883 by workmen engaged in various trades, 69 by employers who conformed to the rule 3, which required that the names of the actual workmen should be affixed to the articles, and 32 by employers who did not conform to this rule, and by persons who had lent articles on loan, both of which are ineligible for prizes. The total number of exhibitors is 827. Among these 95 medals (of bronze) have been awarded, and 94 certificates of honourable mention.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

INVENTIVENESS OF WORKING MEN.

To the Editor of the Working Man.

Sir,—Your correspondent, "Overlooker," is quite correct in his idea as to the want of invention amongst working men, and has made a valuable suggestion as to the means of improving them in that respect—viz., by using your valuable Journal as a medium for suggestions of articles of utility required. However, in reference to his idea of a "crust-grinder," he has made a mistake. There ought not to be any crusts—I never saw any of the kind mentioned in our house all my life. I am a working man, and have a large family, and find by experience that "prevention is better than cure" in every instance, and that, in our house, a crust can never be found left in the bread-basket after a meal; nor do our children ever go away from the table with a crust in their hands.

The cost of the various domestic machines of the kind suggested precludes their use in the families of working men, as I have noticed frequently. A very profitable one is the sausage-machine; but I do not think one working man in a thousand has found it convenient to buy one, although the invention has long been in existence.

I, however, admire the suggestion of "Overlooker," and would like him, or any one else, to satisfactorily settle one point—viz., the way to get an adequate reward for any invention.

I should like every inventor to profit by his invention; but he cannot do so in the present state of the laws.

If he exhibits without first protecting, he loses it for ever, unless he is a manufacturer, or circumstances have placed him in a position to sell the article to the trade without incurring the expense and difficulties attendant upon its introduction. If a working man, it is almost certain he will not be able to patent it; and if he can, he then requires capital to introduce it, and even protect himself against piratical manufacturers, who, I regret to say, are very numerous.

A silver, nay, even a gold medal, alone, would not repay a man for producing an article of universal utility. The merit would be the inventor's, but the profit would be the manufacturer's, who would make it a sort of monopoly.

To ask a manufacturer to buy it as a model or an idea would be useless, for two reasons—one is, that he can make it without; and the other, that he would give so little for it in proportion to its utility or value.

This point settled, I would with pleasure suggest several useful articles and improvements wanted, and would assist in promoting the object in every way I could. I feel an interest in this subject, and will, if agreeable, write again.—I am, Sir, yours truly, Rowland Thomas.

A NEW RULE FOR INDUSTRIAL EXHIBITIONS.

To the Editor of the Working Man.

Sir,—It was impossible not to feel gratified at the communication from Mr. W. J. Watts, the Secretary of the Metropolitan and Provincial Working Classes' Industrial Exhibition, which appeared in your thirteenth number, stating that a prize medal for the best working model of an inexpensive crust-grinder, suggested by me in a previous number, would be given by that Exhibition. In thus encouraging inventiveness and originality of design and workmanship, these exhibitions will acquire new uses and a higher character than they have hitherto attained.

I am very glad to observe that the Society of Arts have introduced into their programme of prizes for art workmanship a clause, which deserves the notice of the conductors of the Working Class Exhibition. They propose to permit "any producer to exhibit, in connection with their society, either in his own name or through his workmen, any work or works, as specimens of good workmanship, provided that the work or works be accompanied with a statement of the name or names of the artisans who have executed their respective portions; and if the work or works be sufficiently meritorious to deserve them, extra prizes will be given to the artisans who have executed them." This arrangement is a very wise one, and working men may be grateful to the Society of Arts for having devised it. At present, Working Men's Exhibitions cannot be made attractive wholly by their own workmanship. They have not capital nor ideas sufficient at present to fill a great exhibition with their exclusive handiwork. The committees, therefore, are obliged to have recourse to masters and shopkeepers, to lend them attractive objects. Objections have been made to the present exhibition in the Guildhall, London, that it is more a shopkeeper's and manufacturer's exhibition than one of workmen. But this rule of the Society of Arts will, if acted upon, make it possible to combine the capital of the master and the skill of the artisan in the same exhibition. The skill of the workman and the design of the employer will both have recognition and awards. This seems to me, Mr. Editor, a step so necessary and important, that I shall be obliged by your permitting me to draw the attention of your readers to it, who may be connected with devising and conducting Working Men's Exhibitions.—I am, Sir, yours respectfully, An Overlooker.

PRIZE ESSAYS BY WORKING MEN.

To the Editor of the Working Man.

Sir,—I see that prizes are offered, through the medium of your publication, for Essays on various subjects by working men. Allow me to suggest that there is, perhaps, not a more important question for that class of people to solve than that of the "Working Woman at Home"—whether it is better for the wife and mother to be employed in her family, or in occupations which take her from her home? I do hope this subject may be added to the list which I see published in Nos. 10 and 11 of the Working Man.—I am, Sir, yours truly, M. A. B.

THE "WORKING MAN" LIFEBOAT.

To the Editor of the Working Man.

Sir,—Having noticed the valuable suggestion of Mr. Watts in your Working Man, that working men should raise a subscription for the purpose of presenting to the National Lifeboat Institution a lifeboat, to be called the "Working Man," I think many working men would approve of Mr. Watts's suggestion being carried into practice, and heartily give their mite to assist in saving human lives from a watery grave. And I should think no better plan could be adopted for collecting contributions than that used for the *Quiver* Lifeboat Fund.—I am, Sir, yours truly, A Working Miller.

To the Editor of the Working Man.

Sir,—I am very happy to see that the suggestion thrown out in your columns a few weeks since is likely to be carried out, and to good effect. I refer to the Lifeboat, and to the letter of my friend Mr. Watts in your last issue. The suggestion he makes is valuable, and I believe only wants to be made in a practical form to meet with great success. A lifeboat would, indeed, be a most interesting feature of the forthcoming Industrial Exhibition to be held in the Agricultural Hall, presented to the nation by the working men, and called by their name, and I feel bound to say that no more honourable name could be given to it. The National Lifeboat Institution is a blessing to our favoured country, and has done, and is still willing to do, a vast amount of good; but its power is necessarily limited in extent, and I feel certain that the working classes would aid with the greatest pleasure the objects of such a noble institution, which has for its aim one of the greatest and most important of duties, the saving of human life from the power of the elements. The experience of the last few months has taught us that many more lifeboats are required, and the sooner every dangerous point of our coast is supplied, the happier and more contented shall we feel.

Remembering the fearful violence of the late storms, which raged with such power on this coast, and the great number of lives which were lost but a few weeks since all around this neighbourhood, I should feel a peculiar pleasure in being allowed to assist in such a noble work. There are many perilous parts of the coast of Devon and Cornwall where a lifeboat would often be of great service, and where there is no lack of hardy, bold, and noble men, who would gladly put to sea in the fiercest gale to endeavour to rescue their drowning brothers, were they provided with a safe and sure means of rescue.

I am very pleased to see that the celebrated firm which you represent are willing to take this matter in hand, and trust that I shall have the pleasure of seeing the "Working Man" in reality, if I am privileged to visit the Agricultural Hall in the ensuing autumn. There is no difficulty in the matter. Many schemes may be brought forward, and may be met by numerous obstacles, but I feel sure that none exist in this case. I shall only be too happy to use my best endeavours for the good of the cause in this locality, and believe that the suggestion will call forth a response from the heart of every right-thinking working man.

I would suggest that a circular be printed and circulated, and that each subscriber to the Working Man—I mean the Journal—be solicited to give his support to the scheme and become collector. I have no doubt Mr. Watts would assist greatly in the matter. The influence he has in various parts of the country, as connected with the Industrial Exhibition, will, I am sure, go far towards ensuring the success of the undertaking. I would, therefore, further suggest (of course, subject to your own decision), that Mr. Watts be requested to ask his agents in various parts of the country to become also agents for this matter; that collecting cards or papers be prepared at once and circulated, your own firm, as stated, to be the treasurers, to whom all remittances should be sent. A well-organised plan would, I am sure, be the means of adding, not only one, but several lifeboats, to the number at present doing such noble duty.

Trusting that you may find a corner for these few remarks, and, further, hoping that by next winter the lifeboat may be at its post, but, happily, not required, I remain, Sir, yours very truly,

Plymouth, April 5th, 1866. W. H. K. Wright.

To the Editor of the Working Man.

Sir,—I have seen with great pleasure that you have given Mr. Watts's letter a prominent place in your columns, of which, as an effort in the cause of humanity, nothing could be more deserving. I am sure my fellow working men will not be deaf to an appeal in such a noble cause, but will come forward willingly and assist.

I beg to propose that you issue printed forms with the Working Man, to be filled up with subscriptions and returned with the amount collected; and I also suggest that our clubs take a part in the movement, for if they do so to the extent that I imagine they are capable of, we shall be able to have two lifeboats, instead of one. One might be named the "Working Man," and the other, in memory of one of his best friends, "John Cassell."

Pledging myself to do the most that small means will permit, I remain, yours truly, D. H.

April 9th, 1866.

BREAKFAST TIME.

To the Editor of the Working Man.

Sir,—I have long thought it would be a step in the right direction for Trades' Unionists and agitators for the moral and physical welfare of the working classes, if, in connection with the shortening of the hours of labour, they would give their attention to what seems to me a way whereby they would gain a step, at least, toward their end—namely, instead of a half-hour for breakfast, as is the custom in all large towns in England, this was changed to one hour, as is the custom everywhere in Scotland, where it works with beneficial effect—especially in the case of the building trades in Edinburgh, where, principally through having the hour for breakfast, they only work fifty-one hours per week. By that means, they would not only shorten the working day, but would also be enabled to go home to a comfortable and cheaper breakfast.

Trusting you will oblige by inserting this in your truly valuable paper, I am, Sir, yours respectfully,

A Working Man.

Newcastle-on-Tyne, April 3rd, 1866.

THE PERMISSIVE BILL.

To the Editor of the Working Man.

Sir,—Two important subjects—Temperance and Co-operation—to which you have given prominence in the Working Man, have caused me to feel an especial interest in this unique publication. May I claim a few lines amidst your voluminous and interesting correspondence for a notice of one branch of the temperance question which has not received adequate attention; I refer to the movement for obtaining permissive prohibition of the liquor traffic. I fear that thousands of temperate and well-meaning working men in the metropolis are prejudiced against the proposed Permissive Bill, promoted by the United Kingdom Alliance. What does that Bill propose? Here is the preamble:—"Whereas the common sale of intoxicating liquors is the fruitful source of crime, immorality, pauperism, disease, insanity, and premature death; whereby not only the individuals who give way to drinking habits are plunged into misery, but grievous wrong is done to the persons and property of Her Majesty's subjects at large, and the public rates and taxes are greatly augmented; and whereas it is right and expedient to confer upon the ratepayers of cities, boroughs, parishes, and townships, the power to prohibit such common sale as aforesaid: be it therefore enacted," &c. A clause provides that when two-thirds of the ratepayers of any parish object to the sale of intoxicating drink, they shall have power to veto the issuing of licences. This is fair, I think, and I am sure the matter at issue is of vital importance to working men and their families. I content myself with simply introducing the subject of the Permissive Bill. I hope, sir, you will permit the measure to be discussed. Let both sides have a fair hearing.—Yours truly,

Manchester. Henry Pitman.

TO CORRESPONDENTS.

A Subscriber (Thurso).—We know of nothing better than soap and water. If the dye be good, the flannel will not fade; but some portion of colour generally washes out. To restore it, a dip into a red aniline dye will be found effectual. Handwriting pretty good.

Hopeful.—The punches you require for modelling flowers are sold at the tool shops of London and other large cities; the prices vary with the size, &c.

Searcher.—Sealing-wax is made by melting slowly over a gentle, clear fire 4 lb. of shellac, and, when melted, adding 3 lb. of vermillion if for *superfine* wax, or red lead or Venetian red for bottle wax, and 1 lb. of turpentine, first removing the pot from the fire. When the whole is well stirred and mixed thoroughly, weigh out portions of half a pound each, and roll them on a marble slab, kept warm by a stove beneath. They are then removed to a cold marble slab, and rounded and polished by being rolled under a smooth block of wood furnished with handles. The polish is increased by holding the sticks of wax before a clear fire for a few moments. Black wax is obtained by substituting lamp-black for vermillion. Making fulminating silver is a very dangerous operation, which you do well to avoid.

Ainslie.—Fustic is not a permanent dye, and is never applied to a stuff alone. It is employed in conjunction with permanent dyes to produce various hues of orange, scarlet, chamois, and various orange greys.

Y. C. W.—Canada is preferable to the United States for emigrating to: the cost of living in the latter is a serious difficulty for a person to encounter while seeking employment.

Alfred C.—Your chisels break because they are too hard. Let the temper down slightly, and you will succeed better.

W. A. S.—No feed-pump is required when Gifford's injector is employed.

Vulcan.—See the article in the previous number, entitled, "The Art of Writing Prize Essays."

H. B.—Thanks for the extracts, but they are scarcely suitable for our columns.

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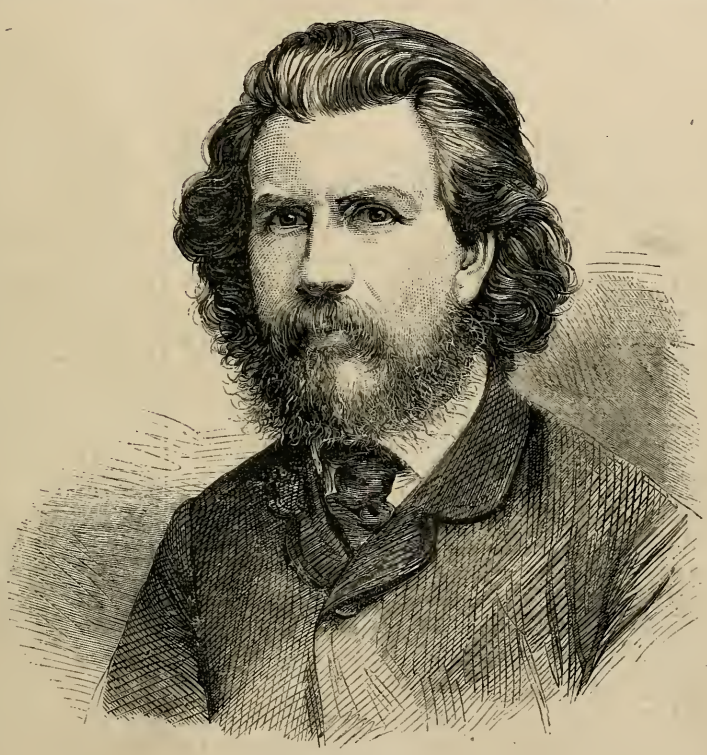
Gerald Massey.

THE ranks of Labour have produced many noble-hearted singers, men of stern purpose and heroic nature, in whose ringing, impassioned outbursts of song, the most superficial of observers can scarcely fail to detect something of the history of the poet: of his slow and painful march from darkness into light, and of his fierce struggle—hand to hand and face to face—with the gloomy cares, agonising trials, and bitter sorrow, which so frequently beset the pathway of those born to a life of poverty and toil. Such men seldom forget the order from which they have sprung. Their greatest glory is to become the chosen interpreters of the people; to chant the glorious aspirations of the children of toil, and to become the welcome messengers of the happy days yet in store for those whose lot is generally one of pain and hardship.

So it was with Gerald Massey, who, to use the words of a critic in the *Times*, has fought his way to the temple-gate sword in hand. When he had emancipated himself from the burdens which had pressed so heavily upon his earlier life, and gained for himself a reputation envied by many, he said, with simple, yet touching pathos—"I retain my verses as memorials of my past, as one might keep some worn-out garment, because he has passed through the furnace in it; nothing doubting that, in the future, they will often prove my passports to the hearts and homes of thousands of the poor. . . . They will know that I have suffered their sufferings, wept their tears, thought their thoughts, and felt their feelings, and they will trust me."

None but one who had experienced the saddest trials of a toiler's life could have spoken thus, and Gerald Massey was no exception to the rule. Born in 1828, the son of a canal boatman, residing at Tring, Gerald Massey, while yet a boy, had to learn to work for his living. At an age when other children were at school, or gathering buttercups in the fields, young Massey was toiling in a silk mill. He was only eight years old, yet he had to rise at five in the morning and work until half-past six in the evening. No matter whether it was summer's heat or winter's cold, sunshine or rain, the poor child had to be at his post; and woe to him if he was belated—if he was not within the gate by the time that the factory bell had ceased ringing! A fine, however little, had a sensible effect upon the 9d., 1s., or 1s. 3d., which formed the respective amounts received by the child for his labour. Can we wonder that, in after years, the thoughts of his child-life should have nerved his muse into some of those bold, fiery utterances, which sank so deeply into the hearts of those who heard them? At last, the mill was burnt down, and young Massey stood for twelve hours in the cold wind and sleet, rejoicing at the destruction of what, to him, had seemed little better than a prison.



GERALD MASSEY.
(From a Photograph by J. and C. Watkins, Parliament Street.)

After this, he went to straw-plaiting. The Reports of the Childrens' Employment Commissioners have told us a few of the evils of child-labour in this trade, but Gerald Massey tells us more. The nature of the work, and the unhealthy character of the district in which it was followed, led to the workers in young Massey's neighbourhood constantly having severe attacks of ague. For three years, the future poet suffered from this complaint, which ended at last in tertian ague. Sometimes four of the family and the mother lay ill at one time, all crying with thirst, with no one to give them drink, and each too ill to help the other. Is it surprising that, when the iron had sunk thus deeply into the poet's nature, his first utterances should issue in the shape of fierce, passionate denunciations of the various disparities of our social life? But, Chartist and Republican as the boy afterwards became, there was something in him which led him to gaze above the jarring creeds of political life, and to sing of the eternal brotherhood of man.

Poor as his mother was, she had a kind and good heart. The cares of the harshest poverty had failed to deaden her maternal instincts, and—as in the case of many others who have gained for themselves a reputation—it was to his mother that Gerald Massey owed much of all that was great and noble in him. She sent him, whenever possible, to the penny school, where he learned to read, and where the desire to read became awakened. The Bible and Bunyan's "Pilgrim's Progress" were the principal books to which the boy had access. Afterwards, "Robinson Crusoe" was added to the list. Henceforth the life of Gerald Massey was divided between his work and his attempts to gratify the intellectual yearnings which had been awakened within him. Then came the moment when the first inspiration of the poet flashed within his mind. He had become an errand-boy, and while acting as such in 1848, the news of the French Revolution came to the town in which he worked. The effect upon the mind of Massey was electrical. To use his own words, it was scarred and blood-burnt into the very core of his being. He could no longer restrain himself. He must either sing or die. He must breathe aloud to the world what he believed to be the wrongs of his order, and denounce, in burning language, the acts of those whom he regarded as wrong-doers. Led away by the enthusiasm of his nature, he started, in April, 1849, a small, coarsely-printed periodical, entitled the *Spirit of Freedom*. The extreme opinions advocated by it prevented it from attaining a considerable circulation, and even cost Gerald Massey three situations in eleven months; but there were not wanting those who detected in the wild and almost extravagant utterances of Massey the signs of a genius that was capable of better things. Nor were they mistaken. In the *Christian Socialist*, and afterwards in the *Leader*, there appeared from his pen several poems of exquisite beauty, and strangely at variance with the almost savage wildness of his political lyrics. Gerald Massey was indeed a poet.

Friends now gathered around him, and he was encouraged to prepare a small volume of verse for the press. It consisted chiefly of his earlier pieces, and was published by the late Mr. Bogue. Its success was immediate and decided, and before many weeks had elapsed the whole country was ringing with the fame of its new poet,

the humble man who had so energetically fought his upward way from the ranks of toil to the gate of the golden temple. Preserved by his intense love of the Beautiful, his soul-worship of Nature, from the effects of those degrading influences which have so often proved the bane of our workmen-poets, Gerald Massey has lived to free himself from the erroneous impressions which led him, in some of his earlier pieces, to sing of the rich as if they were the natural enemies of the poor. He has learnt that amid all the faults and vices of modern society, the glorious work of bridging over the broad chasm which separates the two great divisions of the community is being steadily proceeded with. As Massey himself says:—

> "There's no dearth of kindness
> In this world of ours;
> Only, in our blindness,
> We gather thorns for flowers."

And so, with the fresh light afforded him, Gerald Massey has steadily worked on in the course which he has chosen, striving with the voice of poetry to cheer the hearts of his fellow-workers, and to soothe the sufferings of those over whose fortunes Poverty has cast her disheartening spell.

As a writer for the press, he has found a congenial sphere for the exercise of his abilities, and the bestowal of a pension by the late Lord Palmerston has to some extent rendered him less dependent upon his pen for a livelihood; but recently a dark shadow has fallen over his hearth. The gentle wife, whose smile of encouragement in the moments of despondency inspired him to renewed exertions, and who had shared with him the long and weary struggle of his life, has been taken from him. It is a terrible affliction; but the "Poet of the Poor" has one consolation: his sorrow is shared by many of those whose cause he has advocated, and whose aspirations he has so boldly and so powerfully interpreted.

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

We owe our knowledge of the laws of friction to the experiments of Ximenes and Coulomb, made with an instrument similar to that described in our previous article, and which was called by them a *Tribometer*, or Friction-measurer. The following laws of friction on a horizontal surface were fully established by these distinguished observers:—

1.—*The friction is proportional to the weight.*
2.—*The friction varies with the substances in contact.*
3.—*The friction depends but little (if at all) upon the area of the surfaces in contact.*

These laws of friction were published by Coulomb, in 1781, in the French Academy of Sciences. The celebrated philosopher, Amontons, had previously published in the Academy some experiments on friction, in 1699, by which he showed that friction was independent of the surfaces in contact; but, with this exception, it was reserved for Coulomb to make known the laws of friction. Further experiments were made at Metz by Col. Morin, in 1831—34, by direction of the French military authorities, the result of which was to confirm, with trifling exceptions, all the previous results of Coulomb, and to determine, with considerable precision, the numerical values of the co-efficients of friction for all the substances usually employed in the construction of machines.

When a man or quadruped is required to travel along a horizontal road, the force that he has to overcome is that of friction, including the resistance of the air. His forward motion is produced by the propulsion of his legs, which may be regarded as bent levers capable of extension and flexion by the action of suitable muscles. When each foot is placed upon the ground, the different joints are bent, and, as the step forward is made, the muscles extend each joint, and so propel the body forward, in the same manner as a boat or wagon might be propelled by persons placed within, pushing, by means of poles, against the solid ground. The details of progressive locomotion are very complicated; but, fortunately, the results are easily computed in *Work done*, which, as I have already shown, constitutes the basis on which mechanical philosophy must be permanently established.

I have already proved that the work done in an average day by the muscles of the human body is equivalent to lifting 350 tons through one foot. Let us compare with this amount of work, that which is done in walking unloaded, or carrying weights along a level road.

1. If a pedestrian be employed in walking only, without load, it is found that twenty miles a day, with rest on Sundays, give full employment to his strength, and that this amount cannot be exceeded with prudence. From this assumption, if we suppose the man's weight, including clothes, to be 160 lb., we find—

$$\text{The work done in horizontal transport} = \frac{160 \times 20 \times 5280}{2240} = 7543 \text{ ft.-tons.}$$

2. Coulomb observed the work done by porters employed to carry goods 2,000 mètres, returning unloaded, and found that each carried, in the course of the day, 348 kilos. in six journeys, loaded with 58 kilos. at a time. If we suppose each porter to weigh 70 kilos., we shall easily obtain the following result for the horizontal transport:—

Useful work	$= 2{,}000 \times 348$	$= 696{,}000$ kil.-mètres.
Work wasted	$= 2{,}000 \times 2 \times 70 \times 6 = 1{,}680{,}000$	,,
	Total,	2,376,000 kil.-mètres.

Dividing this result by 311, in order to reduce it to foot-tons, we find—

$$\text{Work done by porters in horizontal transport,} \frac{2{,}376{,}000}{311} = 7{,}640 \text{ ft.-tons.}$$

3. On questioning a number of pedlars, who travelled always loaded with their packs, Coulomb found that they were able, with a load of 44 kilos., to travel 19,000 mètres per day.

Assuming their weight at 70 kilos., as before, we find—

Useful work of pedlars,	$19{,}000 \times 44 =$	836,000 kil.-mèt.
Work wasted.	$19{,}000 \times 70 = 1{,}330{,}000$	,,
	Total,	2,166,000 kil.-mèt.

Converting this, as before, into foot-tons, we find—

$$\text{Work done by pedlars in horizontal transport} \frac{2{,}166{,}000}{311} = 6{,}964 \text{ ft.-tons.}$$

Collecting together the preceding estimates of human labour employed in the horizontal transport of weights, we find—

1. Man unloaded . . .	7,543 ft.-tons.
2. Porters loaded and unloaded .	7,640 ,,
3. Pedlars loaded . . .	6,964 ,,
Mean . . .	7,382 ft.-tons.

By dividing this number, which represents the weight transported horizontally in a day by the labour of one man, by the number of tons which a man can lift vertically in a day, we obtain the proportion of weight to friction, or, as it is generally called, the coefficient of friction.

$$\text{Coefficient of friction} = \frac{7{,}382}{350} = 21{\cdot}1.$$

If, instead of 350 ft.-tons, we take the mean of all the results given in the table on page 178, we find—

$$\text{Coefficient of friction} = \frac{7{,}382}{279} = 26{\cdot}4.$$

The coefficient thus obtained coincides in a remarkable manner with that found from a careful study of the mechanism of walking. In walking, the leg which rests upon the ground supports the centre of gravity, which is first raised by the thrust of the other leg against the ground, and afterwards falls, while the suspended leg swings forward as a pendulum, and becomes in its turn the support of the centre of gravity, which is made to ascend and descend, as before, by the thrust and subsequent fall of the other leg. The forward movement of the body, or its horizontal transport, is effected by the pendulum-like movement of the leg, caused by the raising of the centre of gravity, and the work done in walking one step is simply the weight of the man multiplied by the height to which his body is raised at the commencement of the step.

It has been found, by an apparatus invented for the purpose by M. Weber, that in ordinary walking, when the length of the step taken was 2·39 feet, the mean elevation and depression of the centre of gravity was 1·1 inch; and this proportion of elevation of centre of gravity to length of step remained the same, whatever rate the walking was effected at.

From this experiment we find—

$$\frac{\text{Vertical elevation}}{\text{Horizontal transport}} = \frac{110}{239 \times 12} = \frac{1}{26}$$

From all the preceding considerations, it follows that we are entitled to convert horizontal work done in the transport of burdens by man into work done by lifting weights, in the proportion of from twenty-six to twenty-one to unity.

Similar considerations entitle us to apply the same rule to the work done by other animals.

* Continued from page 246.

*Window Plants and their Culture.**

The appearance of insects on plants frequently results from bad treatment; the plant gets weak and unhealthy from want of room and air, and as soon as from these and other causes it becomes fitted for these little pests, they come in thousands. The best way is to remove the plant to some separate place, so as to prevent the insects spreading to the other pots, and by fumigating them with tobacco smoke, they will be stupefied (not killed), and can be washed off. There is a powder which is very useful in removing the green fly; it is sold in little gutta-percha balls, under the name of "Dumont's Insect Powder." When dusted on the spots affected, it kills the little insects.

In growing cuttings it is very easy to apply a little heat, which will greatly help the young plants in forming roots. If a common tea-chest has a plate of glass fitted to the top for a cover, the pots when placed in it can be heated by putting among them a jar, renewed morning and evening with fresh hot water, until the slips have taken root. In a little book written by Miss Maling, full of useful hints to those who love flowers—"Indoor Plants, and How to Grow Them"—there is a description of a useful contrivance for growing slips, and forcing bulbs and plants. It consists of an adaptation of a drawer, or false bottom, to the usual Wardian case, which is so well known: this drawer is filled morning and evening with hot water, so that in the interior of the case a constant hot-house heat is most easily kept up, and the most delicate plants can be successfully grown.

The common Wardian case is very well adapted to growing rare and beautiful ferns, and I have seen in an old "Florists' Magazine," a list of gloxinias and other hot-house plants which are suitable for culture in one; but nothing looks prettier than such a collection of ferns and mosses as can be grown in a Wardian case, with only a northern aspect, and even in the confined and unwholesome air of the city. It consists of a box of wood, about nine inches in depth, and three feet long by two feet or one foot and a half broad; in this is placed the earth in which the plants are to grow, or the plants are placed in pots and sunk in sand. This box has then a covering of glass from a foot and a half to two feet high, and, when the plants get a good watering, and this case is fitted over them, they keep the air pure, and the moisture which rises by day from the damp earth or sand, and falls by night, makes them flourish, and grow green and beautiful.

By keeping the pots in which window plants are grown sunk in sand or in a second pot, five or six inches will be a suitable size to have them. Plants flower sooner in small pots, and there is room for a larger number. It is a good plan to keep constantly growing young plants, for, in most cases, they produce the largest flowers, and they make nicer looking plants; of course, there are exceptions to this as to every other rule which I have laid down, and what these exceptions are experience will quickly show.

One of the most interesting branches of gardening is the raising of new plants from seed; and, though "window gardening" implies want of space to carry on experiments on a large scale, yet the beauty of the window will depend greatly on the annuals that can only be grown from seed.

Such plants as nemophila insignis (bright blue), mignonette, asters, schizanthus, and German ten-week stocks, can be most easily grown in a window without the aid of heat. Half-hardy flowers, among which are some of the choicest window flowers,

* Continued from page 231.

will require some contrivance or other to raise heat and start the tender seeds. It will be easy to do this: place the pots on the chimney-piece, if there is no other convenience; but a box, with a drawer beneath for hot water, and a glass covering, or a jar of hot water placed among the pots, and filled afresh morning and evening, will be better. The proverb "Where there's a will there's a way" applies to nothing better than to some expedient of this kind. The beautiful lobelia gracilis, which droops over the sides of the pot, covered with numberless blue flowers; the erect large flowering lobelia formosa, Chinese primroses, balsams, and those lovely climbers, the thunbergias and maurandyas, can all be raised from seeds, with a very little heat; and, whether they are suspended aloft, and allowed to droop gracefully over the sides of the pot or basket, or are trained over a trellis of wire or wicker-work, nothing adds so much grace or gaiety to a window as a few climbing or trailing plants.

For sowing seeds in pots, there must be about one-third of the pot filled with drainage, and the soil must be sandy. When the pots are filled with earth, put them down into a pan of water until the earth is thoroughly soaked; then take them out and let them stand for about twenty-four hours. Smoothen the surface without hardening it, and then sow the seeds; a good rule, as to the covering the seeds, is to put over each kind of seeds *its own thickness* of sandy earth. Such fine seeds as lobelia, calceolaria, &c., must only be laid on the top of the earth, as almost any depth of covering would prevent a great many of the seeds from ever growing. Over every pot place a square of glass, which will prevent evaporation; when the young plants appear, thin them out, so that those left may have room to grow in. Chinese primroses must, as soon as they are large enough to handle, be put into separate pots, and, if sown in March or April, they will begin to flower about Christmas.

Geranium seeds must have the little awn, or feather, which is at the end, cut off close to the seed, and when the plants are up give to each a separate small pot. As they grow, let them be shifted into four or five-inch pots, in which they will most probably flower the following year.

Fuchsias may be treated in the same manner. The seeds are in large fleshy pods or berries, which, when ripe, are just like red gooseberries; these berries must be carefully bruised in water, and the seeds taken out. The best plan is to wrap them up in paper, keeping them dry until spring, when they can be easily grown, by aid of a little heat.

The Thunbergia seeds will grow very quickly, if they are soaked in water five or six hours previous to sowing. They begin to flower when three or four inches high, and maintain a constant succession of blossoms until winter. The shoots must have the points pinched off as soon as they reach the top of the trellis, or are about two feet long, when hanging down. The blossoms are large, with an intensely dark spot in the centre of each white, yellow, or orange flower.

Balsams are easily raised from seed; they require to be shifted into larger pots as soon as the one they are in gets full of roots. They will live on as much manure and manure-water as would kill other plants. By constantly shifting them into larger pots as they require it, they will grow strong and high, and when well-grown, look very beautiful.

The best way in which to apply liquid manure is to make a pretty strong solution of guano or nitrate of soda, in a small bottle, which keep corked, and add a very few drops of this solution to the water with which the flowering plants are being watered. It is advisable to be very cautious in applying liquid manure to pot-plants; too little suits them better than too much; and it ought generally to be given only to plants which are just going to blossom, otherwise the leaves and stalks will grow too rich and luxuriant at the expense of the flowers.

The cineraria is a favourite pot plant, and it is most easily cultivated from seeds. Indeed, it is much the best plan, in growing this pretty flower, to treat it as a half-hardy annual, unless some very handsome variety is thought worth preserving. The seeds are sown in spring, to flower in winter, and by sowing them at intervals a succession may be kept up for a long period. The cineraria is very subject to the green fly; but a proper attention to watering, and plenty of light and air, will prevent them from attacking the plants. When the plants have done flowering, and sufficient seed has been saved, the flower-stems are to be cut down to the ground; in a short time young suckers will start up all round the pot, and, when large enough, they must be detached and planted out separately.

CITY OF LONDON WORKING CLASSES' INDUSTRIAL EXHIBITION.

The closing ceremony of this exhibition took place in the Guildhall on the 17th inst., when Mr. Ramsay, the honorary secretary, read the official report, in which it was stated that the aggregate admissions on payment during the thirty-five days have been 41,576. Upwards of 2,500 children of the different ward and day schools have visited the exhibition free. The number of prizes awarded by adjudicators chosen by the exhibitors is 193, of which 99 are medals, and 94 are honorary mentions. The total number of exhibitors is 827, exhibiting 1,521 articles, 32 of which were ineligible for prizes. No prizes have been given or awards made but to the actual producers of the articles exhibited, in conformity with Rule 4.

The prizes were distributed by Mr. Peabody, who, in the course of his preliminary address, observed:—"On my part I am bound to say, that whilst I have been constrained to decline many invitations recently addressed to me, I have reserved to myself with peculiar satisfaction the opportunity of meeting the working men of London, whose representatives you are, in the midst of the scene of their honourable rivalry and the display of their most meritorious achievements. Such successful competition as that which meets its due reward this day must be productive of the highest advantage to the people at large, and all classes of the community derive a benefit from the elevating tendency of the persistent industry and skill displayed in the construction of these works of art, which are now about to receive the token of public commendation. Springing as I do from the people, and owning with you the Anglo-Saxon stock, I unfeignedly rejoice in this fresh evidence of the advancement of the industrial classes in the dignity of labour, and in those habits of self-reliance and honest independence which ennoble any people, and afford the surest guarantee of the true prosperity and moral greatness of any country. It is true that these prizes which I am about to distribute are the just reward of your own personal efforts, but I hope you will allow me to remind you, that in receiving your certificate of undoubted merit, you will accept it also as an acknowledgment made by you in this century which will be reproductive of good and redound to the advantage of future generations, who must profit by your laudable exertions in the field of scientific research and in the open workshop of a nation's constructive skill. Should the Great Disposer of all events give to me the happiness of returning to this country, I hope to see the complete success of projects designed by me for the permanent welfare of the deserving poor of this metropolis, and I may then enjoy further opportunities of intercourse with those in whose welfare and happiness I have so great an interest."

In acknowledging the vote of thanks to him for honouring the ceremony with his presence, Mr. Peabody said:—"I feel that instead of proposing a vote of thanks to me for my services, some one should propose a vote of thanks on my behalf for the manner in which I have been received, and the great delight I have experienced to-day in meeting you here, and seeing the great efforts which have been successfully accomplished by so many of the artisans and working people of this country. I trust they will go on and progress in this good work until every working man in London shall feel that he is a man, and has the dignity of a man as much as any individual in the country, however exalted his station. It only rests with themselves to do so. Let them feel that they are in the position to do those things which they have the power to do, and take my word for it they will not only accomplish what they intend to do, but that which will benefit in a great degree this great country, and the whole world. I feel delighted at the manner in which I have been received to-day, and especially delighted to see around me so many of that class of people who have accomplished such results. I say to you, Go on with the work which you have begun, and you will find that in a few years this hall will not hold one-half of the working people that will probably obtain medals at some future exhibition, in acknowledgment of the results of their industrial and scientific excellence."

The closing speech was made by the Lord Mayor, who, referring to the complaints which had been made respecting the alleged exclusion of working-class productions from the exhibition, remarked:—"We have been told to-day that some 50,000 persons have visited this exhibition. I have had frequent opportunities of judging of its character and its conduct. Many of us have been interested, many amused, many instructed, and some few, perhaps—I hope very few—have been disappointed. But we know that there is no human institution, no human work that can be perfect, and this, amongst others, has no doubt had certain defects. If, however, there have been defects, they have arisen not from any want of high-mindedness or honesty of purpose on the part of those who undertook the management, but rather from a want of knowledge and practical experience in the working of such an undertaking. It has been said that the class of persons for whom this exhibition was contemplated was not the working class. But if there was any doubt on any man's mind on that point he should have been here to-day, and have witnessed the honest faces, the rude hands, the intelligent countenances, and above all the independent bearing of those who have come up to this table to receive the reward of their skill and industry—and who are the blood and sinew of the country, which have made us what we are. I am not here to flatter working men; working men, like all other men, have their faults. It is the fashion of the day to talk patronisingly of 'working men' and of 'working classes.' I hold it to be a rule, and a rule I have derived from practical experience, that the working man who lives by the sweat of his brow is amongst the most independent members of society, and my advice to him is not to be patronised, but to go shoulder to shoulder with those of his own order, and, above all, to maintain his independence. He has but to be what my generous friend Mr. Peabody has told him, true to his cause, true to himself, and true to his principles—to be honest, steady, and industrious; and if he have these ingredients in his character, then, I repeat, that no one in this great country is a more noble, a more worthy, or a more independent member of society than the working man."

The proceedings then terminated.

The French Councils of Prud'hommes.

We have recently explained the provisions of the English law with regard to arbitration in the disputes between employers and employed; and the endeavour of Lord St. Leonards to remedy their incomplete and unsatisfactory nature, by a new enactment on the subject. It will be of interest to many of our readers to learn what is done in this direction in France, where Councils of Conciliation and Arbitration have long been in existence, and are still working most effectively.

These Councils are termed Conseils de Prud'hommes—of Wise or Prudent Men—and their origin dates from the Middle Ages. As far back as 1452, one of these councils was established by royal authority, to adjust difficulties between fishermen and their employers. The principle of the council was that an equal number of masters and men should be assembled together, to adjudicate upon all disputes arising in the trade. From time to time, similar councils were established in other callings; but at the close of the last century, owing to various causes—among them, the want of authoritative countenance and support—they had in great measure fallen into disuse.

The First Napoleon, whose wisdom as a lawgiver was often as strikingly displayed as his genius in war, was not slow to perceive the advantages arising from such tribunals, in promoting the peace and prosperity of the commonwealth. He established a law for the formation of trade councils, and their exercise, in certain cases, of the powers belonging to judicial courts. But these councils were not to be constituted in any district otherwise than by the voluntary action of masters and workmen. They were to bear the old title of Councils of Prud'hommes.

The first council under this law was instituted at Lyons in 1806. It was in immediate connection with the silk trade and its attendant callings. The silk weavers of Lyons are a very numerous body, and have not always displayed moderation in pursuit of their objects. On the contrary, in times when labour was ill-paid or but partially employed, they have frequently indulged in lamentable excesses, and disturbed the town by riot and bloodshed. But the Lyonese Council of Prud'hommes has exercised a considerable influence in the majority of disputes between manufacturers and their workmen, and continues to exist at the present day, in greater repute than ever.

The first Council of Prud'hommes in Paris was established in 1844, to adjudicate on questions arising in the metal trades. This was followed, in 1847, by three others—one for the manufactures of textile fabrics, a second for the chemical trades, and the third for all trades not included in the preceding. These four trade councils meet in one building, which is situated in the Rue de la Douane. Other councils have sprung into existence in several of the towns and cities of France.

The Councils of Prud'hommes are elected by the workmen and employers in each district, and consist of an equal number of both masters and men. The president of each council is appointed by the Government. Two courts for the hearing of cases sit in connection with each council. The first is a Court of Conciliation, formed by one master and one workman, whose business it is to see if any case in dispute may not be adjusted by private and pacific arrangement. Here, therefore, all cases are heard in the first instance. The second is the General Court, or Court of Appeal, consisting of three employers and three workmen, presided over by the Government official. Any dispute not settled in the Court of Conciliation is carried to this court of appeal. Matters in which sums up to the amount of 200 francs are involved are settled finally by this court; but in more important cases an appeal lies from the Council of Prud'hommes to the Chamber of Commerce.

The Council of Prud'hommes has other functions besides those of arbitration and jurisdiction between capital and labour. The inspection of workshops, the pronouncing of an opinion to the authorities on matters of labour, and adjudication in apprenticeship cases, with powers even of annulling the apprenticeship, are among these functions. The workmen who sit on the council receive a small payment for loss of time; the masters act gratuitously.

The practical working of these Courts of Labour is simple enough. Any workman who may have a dispute with his employer, or *vice versâ*, may summon the latter to attend before the Council of Prud'hommes on a certain day for the hearing of the case. The cost of the summons is about 3d. On the appointed day both master and workman are bound to appear in person before the council, and each is examined on oath. No counsel is allowed; the Prud'hommes themselves examine and cross-examine, and after deliberating among themselves, announce the decision. Their decision has all the effect of an adjudication by magistrates; they are, in fact, magistrates as far as the matters in dispute are concerned.

The large majority of cases are settled in the Courts of Conciliation—as many as four out of five of the entire number. Something like 50,000 cases are heard in the course of a year by the various councils in France. The tribunals are both respected and popular for the settlement of disputes, and are increasing in number year by year.

The features of these councils are not all in conformity with English views and institutions, but our readers will perceive that the most valuable of them are embodied in the Equitable Councils Bill of Lord St. Leonards. The Councils of Prud'hommes have proved of the highest utility among our neighbours, healing differences and adjusting disputes innumerable, that might have led in many cases to serious consequences both to employer and employed. Why should we not have a similar institution among ourselves?

Electrotyping.

The object sought to be attained by Electrotyping is, by means of the action of the electricity generated by a galvanic pile or battery, to precipitate a metal from its solution upon a given object, in a continuous uniform coating, so that this coating is an exact copy of all the details on the surface of the object. This coating may be adherent, when it is desired to protect an inferior metal by a superior, as when copper is plated with silver; or the coating may be non-adherent, when deposited in a mould, as in the reproduction of antique bronzes, &c.

The electric current employed is usually supplied by the "constant battery," known as Daniell's, or by a Bunsen's battery. The apparatus is either simple or compound. In a simple apparatus, the mould, the object upon which the precipitated metal must be deposited, forms an essential portion of the electric current. In a compound apparatus, the battery is outside the bath to be decomposed; and the mould is connected with the zinc pole; the copper or carbon pole is connected with the bath. The advantage derived from employing a compound apparatus consists in its enabling the operator to attach to the copper pole a soluble electrode, or *anode**—that is, a plate of the same metal as is held in solution in the bath, which plate becomes dissolved in nearly the same ratio as the metal is deposited upon the mould.

Simple Apparatus.—The electrotype apparatus is termed *simple* when the galvanic current is produced in the same vessel as that in which the metallic deposit is effected. It is most frequently employed to obtain deposits of copper, but when deposits of the precious metals are required the compound apparatus is preferred.

Into any suitable vessel (Fig. 1), which may be of glass, earthenware, stoneware, or wood, put the solution of the metal to be deposited—sulphate of copper, *s* (blue vitriol), for example—with which to cover the moulds with copper. Another vessel, P, of much smaller diameter, is placed in the centre of the first vessel; it must be of porous material—unglazed porcelain, for instance. Sulphuric acid, diluted with from twelve to fifteen times its weight of water, is poured into the vessel P, and a plate or cylinder of amalgamated zinc, Z, suspended in it. The moulds, *m m*, are put in communication with the zinc, Z, by means of a copper wire. The solution becomes exhausted of its copper in proportion as it is deposited on the moulds, and must be renewed by suspending a bag of crystals of sulphate of copper in the bath.

Fig. 1.

When operations are carried on upon a large scale, the apparatus may be constructed in the following manner:—A box of any required dimensions, constructed of elm, oak, or any hard wood, is coated inside with pitch, marine glue, or gutta-percha. The box is divided into two compartments by a porous partition, or diaphragm, which may be made of plaster of Paris, or of parchment. If of plaster, it must not be more than half an inch in thickness, so that the intensity of the current may be diminished as little as possible.

The first compartment is nearly filled with a cold saturated solution of sulphate of copper, or of any other salt which it is intended to decompose. Into this solution the moulds are suspended near the diaphragm. The second compartment is filled with water, slightly acidulated, in which a plate of zinc, presenting a surface nearly equal to that of the mould, is suspended, at about half an inch from the diaphragm. When matters are thus arranged, connection is established by means of a copper wire between the moulds and the zinc. As soon as the circuit is closed, an electric current results, in consequence of which the zinc becomes the positive pole, and the mould the negative pole; the sulphate of copper is decomposed, the sulphuric acid and the oxygen go to the zinc, which is dissolved; the hydrogen of the decomposed water then reduces the copper, which is deposited at the negative pole. The solution is kept in a state of saturation, as in the preceding case. The temperature should be maintained between 104° and 107° Fahr., to avoid crystallisation; and as saturation is always more complete at the bottom of the vessel than at the top, the mould must be turned from time to time, quickly, to prevent oxidation.

Another inconvenience is the unequal thickness of the deposit, always more abundant at the extremity opposite to the point of connection

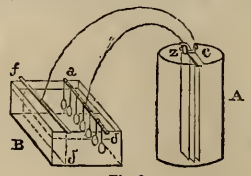


Fig. 2.

than at the point itself. This inconvenience is remedied by placing several conducting wires along both ends of the mould, taking care to turn back those which are fixed to the lower edge.

Compound Apparatus.—The apparatus is *compound* when the galvanic current is produced outside the bath containing the solution to be decomposed. In this arrangement a current of any degree of strength may be employed, according to the size and number of cells forming the battery (Fig. 2). A is the battery, B the vessel into which the solution of the metal to be deposited is placed; the moulds are suspended to a metal rod, *a b*, opposite to which the metal plate, *f d*, is hung—copper, if the solution is a salt of that metal, will serve as the *anode*. The battery being charged, *f d* is put in communication with the copper pole, C, by a copper wire, and *a b* is put in communication with the zinc pole, Z.

Batteries.—The batteries generally employed are those of Daniell and Bunsen. The Daniell battery, as improved, (Figs. 3 and 4), consists of a copper vessel, A B D, about 7 in. in height, 5½ in. in width, and ½ of an inch in thickness, furnished with two appendages, A and B, forming a bevelled pocket, communicating with the interior of the vessel by numerous apertures, and filled with crystals of

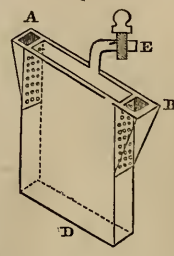


Fig. 3.

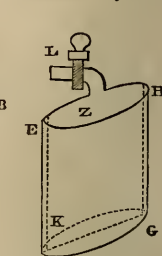


Fig. 4.

sulphate of copper. A saturated solution of sulphate of copper is poured into the vessel, into which a linen bag is immersed, containing a plate of zinc, Z K, 4½ inches wide. By means of two screws, L and E, the conducting wires may be adjusted to the poles, or the zinc element may be attached to the succeeding copper element.

* The *anode* is the electrode placed at the positive pole of the battery, which in the electro-chemical decomposition can be dissolved, or which, if it be insoluble, attracts oxygen and acids.—The *cathode* is the electrode which, placed at the positive pole, receives the metallic deposit, or attracts hydrogen and alkalies.

Coining Dies.

A few weeks back, we gave a description of the various and interesting processes connected with the production of coin at the Royal Mint. It is now intended to supplement the series of papers in question with a description of the mode of manufacturing coining dies, as practised in the same establishment. It is not generally known that dies for stamping money, though made of the finest steel which this country can furnish, are very short-lived, and that the best of them do not last more than a single day. The severe ordeal of the coining press, indeed, very soon defaces the beautiful impressions which ornament them, or else causes their fracture, and thus renders them useless. Hence it is that a continual reproduction of dies is necessary for the successful carrying on of the coinage of the realm; and, at the Mint, one department is devoted solely to the performance of the important work.

The prevalent belief is, that each individual die used for the coining of money or the striking of medals must first be engraved by the hand of a skilful artist; and that, therefore, at the Mint, where both operations are carried on most extensively, a staff of engravers must be constantly engaged in the preparation of new dies. This is by no means an unreasonable supposition—so far as the uninitiated are concerned—but, since it is also an erroneous one, it is intended to remove it, and to substitute in the public mind an accurate knowledge of the system of die manufacturing as actually performed in the great national money factory. Unless we are much mistaken, it will be found that the processes employed in the conversion of bars of Sheffield steel into coining dies are as full of interest as those exercised in any other branch of industrial art.

Undoubtedly, the ancient mode of preparing dies was identical with that which is generally imagined to be in existence now—namely, that of cutting in the various designs and devices upon softened steel blocks, by means of etching tools and gravers, and afterwards hardening and tempering the engraved blocks by the application of fire and water. By such laborious and tedious agencies it was, for example, that the renowned engraver of the days of Cromwell and Charles II.—Thomas Simon—produced the very beautiful

dies used for coining the moneys of those potentates. The same system prevailed until a recent period, when the demand for coin increased a thousand-fold, and when a large staff of engravers would have been required to keep up the necessary supply of dies. As usual in this country, mechanical ingenuity did not long linger behind public necessity, and machinery was devised as a potent auxiliary to the skill and labour of the artist. All that was wanted subsequently was, the guidance of one master mind to devote the new contrivances to profitable purpose, and this has never since been absent from the die department of the Mint, as witness the names of its successive chief engravers, Pistrucci, and the Wyons.

It would not be just to the memory of an individual long since deceased, to proceed with our proposed description of die manufacturing without mentioning his name, because the die manufacturer is largely indebted to his skill and perseverance. We refer to Richard Huntsman, of Sheffield, who invented the very best material for coining dies—cast steel. After many years of patient investigation, and innumerable experiments, made under disadvantageous circumstances, he succeeded in producing this invaluable metal. Briefly, his process of making cast steel may here be referred to, as an acquaintance with it will render what follows more intelligible, and as his plan of operations has not been materially deviated from to this hour.

The melting of bar, or wrought, steel is effected in small crucibles, formed of clay and plumbago, and which are each capable of holding about thirty pounds weight of metal. Ten or twelve of these are placed in furnaces similar to those used in ordinary brass foundries. They are charged with pieces of steel, reduced to a particular degree of softness by annealing, and which weigh about a pound each. Lids of clay are next placed upon the crucibles, and the intense heat to which they are exposed reduces their contents to a fluid state. In about three hours, the molten mass is ready for "teeming." The subsidence of all ebullition, and the dazzling brilliancy of the metal, are proofs of its fitness to pass into the moulds, and into these it is forthwith poured. When cold, the resulting ingots are ready for the market and the workshop. Those which are intended for dies are elongated by rolling into bars, and a batch of these we will suppose to be transferred to the Royal Mint. They are of rectangular form, and of various sizes, in accordance with those of the respective denominations of coin in the British series.

Let it now be imagined that a coinage of florins is required to be struck, and that the entire duties of engraving, sinking, and multiplying a large number of dies of that description have to be performed. The engraver will then first test a bar of cast steel, by observing its grain and texture when fractured, and its appearance when polished. If the results are satisfactory to his practised eye and judgment, this bar will be sent, in the first instance, to the forge, to be dealt with by the smith. One end of the bar will be heated next to redness, and two pieces will be cut off it of the required dimensions for an obverse and reverse die. These are speedily swaged into round form, the hammering serving to increase their density and tensile strength. The two rounded blocks are now annealed, and this is effected by placing them in a wrought-iron pot, surrounding them with animal charcoal, and depositing the whole for some twenty-four hours in a well-heated oven. They are then withdrawn, and allowed to cool gradually. Afterwards the lathe is brought into requisition, and one end of each block is turned flat and smooth. The engraver now takes them in hand, and upon the polished surfaces etches and engraves in intaglio the respective obverse and reverse devices. This is a work which demands close attention and great patience, and many impressions are taken in wax or in soft metal ere the ornamentation is deemed complete and satisfactory. At length this latter consummation is obtained, the letters of the legends and the date are stamped in, and the *matrices*, as they are termed, are, so far as the engraving is concerned, finished.

DESIGN FOR A MIRROR FRAME.

The Artist Workman.

In the production of frames for pictures or mirrors, the taste and ability of the artist workman has the widest possible scope. There is scarcely a limit to the exercise of his ingenuity or power of design. In the choice of materials, too, he has a large field of selection. He can have recourse to the various metals, and display his skill in casting and chasing; he may show his aptitude as a wood-carver; or he may employ *papier-maché*, or composition, as the vehicle for realising his artistic conceptions. Yet our art-workmen, excepting those actually engaged in the manufacture, have seldom employed their abilities in this direction, although it is one peculiarly adapted for the development of their real powers. Flowers, figures, and ornament can be employed singly or in combination with each other, as in the design given above; but care should be taken not to overload the design. The extremes of too much and too little ornament should be carefully avoided, and attention be directed to the attainment of a graceful and picturesque design.

The Mechanical Part of a Prize Essay.

It is proverbial upon what slender things great events sometimes turn. There is some reason for this impression, since no one can tell what link in the chain of causes and effects is the most important; and where each is necessary, every one should be perfect. It is said that the destinies of the world would have been changed had Cleopatra's nose been a quarter of an inch shorter. We have, as yet, whatever we may do in the future, no means of controlling the length of a lady's nose; but the minor events which make up the daily course of duty are more or less within our power, and are worthy our attention. It is true that a person may be led to pay too much attention to details, and be so absorbed by them as to be incapable of taking those larger views of questions and influences which mark the difference between a narrow and a liberal mind. Still it remains true that minor things have their due importance. It is a maxim in mechanics that no machine is stronger than in its weakest part. The powerful engines in the *Great Eastern* will be brought to a standstill if a single pin starts, or the tooth of a cog-wheel breaks. Every piece of the machinery must be equal to the strain it is appointed to bear, or the movements of the whole will be arrested. This is as true in morals as in mechanics. A celebrated French writer has said that the continuity of small duties well discharged is of more importance to society than the striving after the execution of sublime duties. We are not quoting, but paraphrasing the idea of the French writer. Only a very few persons ever have the opportunity of acting conspicuously on the great theatre of events. But everybody is daily engaged in the discharge of those humbler duties which make up the happiness of mankind.

So small a matter as the caligraphy—that is, the actual writing or penmanship—of a prize essay has much to do with its effect and success. We do not mean that nonsense written in an elegant hand would pass, where good sense badly written would fail; but if the good sense were so written that nobody could make it out, what is to become of it?

By good writing, we do not mean fine writing, but plain writing. Elegant writing, as it is called, is often more troublesome to read than what is called a bad hand, if it be at the same time a plain hand. Some persons indulge in so many scrolls and flourishes, that their handwriting is far too elegant to be understood. Good writing—by which we always mean perfectly legible writing—is as scarce as good speaking—by which we again mean plain and distinct speaking. Some time ago, a gentleman advertised for a young man who could write a good plain hand. Out of fifty applicants there was only one who could fulfil the required condition. Though we are making these remarks for the instruction of working men, who have lately been invited, in these columns, to engage in writing prize essays, we are not bringing charges against working men as the only persons whose handwriting is open to improvement. Bad writing is as much the defect of gentlemen as it is of working men. Many distinguished authors write so badly that it sometimes requires an entire printing office to make out their manuscript. Lord Brougham, when at the bar, wrote a hand which puzzled

many a client. During the current debates in the House of Commons there was, as there always is at interesting times, great competition to get names put down upon the Speaker's list. When this is done, the Member of Parliament through whom it has been done will write a letter to his friend, and inform him of it. This gives—that is, the name of the persons on the Speaker's list—the right to be present to hear the debates. At such a time this privilege, to those who must be present, is a priceless one. We, however, saw two instances, a short time since, in which this advantage was lost through the inability of reading the name of the night for which the name was down. Whether it was a Monday or a Thursday in the note of information, nobody could tell, and the nights were lost in consequence.

Perhaps the easiest way to explain the matter we have in hand, will be to take the case of a young workman whom the present writer once knew, who succeeded in winning several prizes at one time. It happened that a series of essays were wanted upon different subjects, yet with one connected purpose. But we may dismiss this part of the subject and the manner and method of thought adopted, it not being our purpose to enter upon that. Our concern just now is with the writing portion of the work. The young man said to himself, "I will take plenty of paper to begin with. It will not make sixpence difference in the cost. I will write only on one side of the paper, so that there shall be no trouble in turning over to follow the reading. I will use a broad margin, so that the writing will not look crowded, and leave space at the top and the bottom for the same purpose, and repeat at the bottom of every page the first word with which the next page begins, as the lawyers do; so that the reading, assisted by the catch-word, may easily follow on in the mind of the reader. My writing must be plain, that it may be as readily read as print. But to have this quality, all the letters must be made uniformly. There are two or three ways of making *r*'s, *s*'s, *y*'s, and other letters. The tops of *d*'s may be square or looped, and so of *h*'s and *l*'s. *T*'s may be crossed at the top or in the middle, according to the patterns adopted. My business, therefore, is, to write out my alphabet, and choose my letters, and always make every letter in the same way, since every variation increases the mystery of the meaning, when the word in which it occurs happens to be obscurely written. There are as many ways of making capital letters as of making small letters. I will, therefore, make an alphabet of capitals, and choose the patterns of those which I intend always to use. Everybody knows that printed letters, capitals or small letters, are always the same pattern, according to the style of the 'fount' used, and from this there is no variation. It is this which helps to make the reading of print so plain and easy. By putting a clear space between every sentence, the composition will be made still more intelligible to the reader. Knowing that every person, however plainly he may write, will write still more plainly if he uses ruled paper, I will therefore buy ruled paper. When my essay is done, I will stitch it in a cover which will open easily, and show all the writing at once, without trouble; taking care, of course, that I use black ink—the blackest I can get—and have white paper to write upon. The importance of black ink is considerable. Probably the intelligibility and the ease of the perusal of a written paper will very much depend upon it. To use a broad-nibbed pen increases, by its bold strokes, the print-like look of the writing. Of course, straw paper is the best to use, as erasures can be more easily made upon that, than upon the hard glazed paper."

New Form of Stay-bars.—The stay-bars or rods which bind together the sides of locomotive and other boilers, are of the utmost importance; numerous explosions having their origin in the weakness or destruction of these, brought on by gradual corrosion. To render their fracture or serious deterioration perceptible externally, the French Northern Railway Company have, for some time past, used tubular rods, the escape of water or steam through which shows at once that they have given way, or are seriously injured. The rods are bored out; but as the diameter of the bore is very trifling compared with its length, this was at first a matter of some difficulty, which has, however, been overcome. These hollow bars have not proved in any way inferior to the solid previously in use. The openings are slightly closed whenever ashes, &c., would be likely to enter them.—*Scientific Review.*

*The Temperance Question in its Industrial Aspects.**

The temperance advocate steadfastly contends that all the evil described by us would be avoided by the general adoption of his principle of abstinence from intoxicating drinks of all kinds; and he is right in insisting that it is not to downright sottish inebriation that these results are chiefly due, but to a love of drink, which finds ubiquitous external facilities to its gratification and daily growth. It is contended, on the other hand, that strict moderation in the use of such liquors would obviate these results; but it is again rejoined (1) that the effort to discover the bounds of this moderation is a task of no small difficulty and danger; (2) that the custom of social drinking is a great hindrance to setting about such a task; (3) that previous habit renders its attainment physically impossible to many; and (4) that, if accomplished, it would be less easy to sustain and less fruitful of good than total abstinence from such intoxicating articles. It is a startling consideration that abstinence, if universal among working men, would bring with it an increase of industrial effort, production, and remuneration equal to the addition of two months to the year. Those who adopt the practice are justified in asserting that, till it becomes the rule, they are deprived of much of the benefit to which they are entitled by their abstinent conduct.

It has sometimes been objected to the Temperance movement that it would only secure its triumph by the annihilation of the lucrative and extensive branches of industry engaged in the manufacture and sale of intoxicating liquors, together with serious detriment to other trades that are subsidiary to them. This objection, however, is entirely irrelevant to the inquiry opened up in this paper, which has respect, not to the liquor traffic as a branch of industry, but to the influence of drinking on the general industry of the country. At the same time, the objection, when proposed, ought not to pass without an answer, which is afforded by the fact, that as the drink-traffic does not create the wealth that supports it, and as the £70,000,000 which do support it would remain to be expended, if not expended in drink, the community, as a whole, would derive equal, if not greater, benefit from another application of the same amount. It is clear that the classes who now live out of this expenditure would be deprived of it; but the same expenditure on other products of industry would be of no less value, perhaps of augmented value, to the labour market in general. The golden current would not be dried up, but, taking another direction, would fructify a larger area of the industrial soil.

Two observations remain. Capital, which is one of the fountain-heads of industrial productiveness, would unquestionably accumulate much faster than it does now, were the Temperance movement to be nationally successful. The working classes cannot become capitalists individually, but co-operatively they may; and we may predict that they would then co-operate to a very much greater extent than they have yet done, were they to save all that is now spent by them in the purchase of intoxicating liquors. Labour and capital would also be on more friendly terms. What is viewed with envy and hatred when in the power of another, may be regarded with delight when in our own possession; and so it would happen, in numerous instances, that English operatives, when capitalists themselves, would change their opinions concerning the nature of that capital on which they had before looked with aversion and dread.

Industry, we may further remark, ought to lead to social advancement. Daily honourable toil ought to raise the toiler in the world. His industry should not resemble the round of a horse in a mill, or the unprogressive movement of a biped on a treadmill. It is true that industry does bring its reward, but if violence is offered to industry by the influence of strong drink, we must expect a corresponding failure in the life career of those to whom this violence has been offered in their own persons. To shut our eyes to facts is foolish and useless; and we cannot be blind to the evidence of all ages that the chief hindrance to the social elevation of working men by their industry has been the degradation attendant on their drinking habits. The old chroniclers tell the same old story, and writers like Defoe and Franklin, whom none can accuse of contempt for labour, or want of sympathy with the manual worker, have repeated the story while they have deplored its truth. Defoe, in his "True-born Englishman," remarks of the workmen of his day—

"In English ale their dear enjoyment lies;
For which they'll starve themselves and families.
Good drinkers' company is their delight;
And what they get by day they spend by night."

Grateful we truly are for numerous proofs of amendment on every side, yet the satire of a century and a half ago is not out of date; and the temperance reformer may boast, whatever some may say concerning the extreme character of his principle, that it would put upon the head of honest industry a crown of dignity, and into its hand a sceptre of dominion, of which the witcheries of the bottle have hitherto deprived it.

* Concluded from page 230.

"A WORKING MAN."

What is this creature, wild or tame,
To keen philosophers a puzzle?
Which scarcely seems two days the same—
Which some would coax, and some would muzzle?
"He'll bite!" cries one. "Not he!" another
In scorn replies. "His features scan;
He's drunk, or sleeps—more one than t'other."
What is it, then, this "Working Man?"

Like that chameleon of old,
Of which we've heard in fabled story,
This creature's coat may lines unfold,
May please a Whig or shock a Tory.
"I'm sure he's blue." "I'll swear he's yellow."
"I see the red all down his back."
"Look, now, he's grey—the dirty fellow!"
"You fool! from head to tail he's black!"

Is he a Christian or a Jew?
You'll hardly tell him by his bearing,
Or know if one 'mong all his crew
Is "fish, or flesh, or good red-herring."
We'll ask, with Shylock, "If he's tickled,
Will he not laugh? Or if he's pricked,
Will he not bleed?" Turn salt, if pickled?
Or stand quite tamely to be kicked?

Ah me! This twaddle makes one sick!
That men should class a fellow-being
As if he were a stone or stick,
Devoid of sense of hearing, seeing!
As if a soul-inspired brother
Were spawn of some unholy brood,
And not—you, I, or any other—
Just simply common flesh and blood!

One might suppose, in this old land,
This England, men had learned to reason
That not to work by head or hand,
Against God's will was simply treason.
And more! That 'twixt the simplest moiler
The difference, vague, undefined,
And him, the loftiest mental toiler,
Was in degree and not in kind.

There are some things man dares to be:
A slave to craving, brutal passion
Of meat, or drink, or ribaldry,
A foppish driveller to fashion;
For worldly gain a blushless liar;
A coward 'neath a falsehood's ban.
Let him dare this, nor fear decryer—
Dare be simply "Working Man!"

W. D.

Warrington People's College.—From the report lately issued by the committee, we find that during the past year the offices in both the boys' and girls' playgrounds have been rebuilt on a greatly improved plan, at a cost of £102 10s.; the buildings have also been thoroughly painted and coloured, and are now in every way in excellent condition. The day schools are in a flourishing and prosperous state. The average attendance during the year has been 217 boys and 97 girls: they have made 108,375 attendances, 4 having been present the whole of the 440 times the school has been opened. We also find that the education now afforded at the college is of a much superior character to what it was when Mr. Brewtnall came to it, in 1848. At that time, when, according to the inspector's report, it was "bordering on extinction," only the three "R's" were taught; now, in addition to these, the pupils receive instruction in the higher rules of arithmetic, algebra, geometry, singing, drawing (314 pupils), and French. These improvements have been made, notwithstanding the fact that 17 new competing schools have sprung up. The number of children educated in the schools since 1848 is 4,744. In 1848 the schools were some £300 in debt, a deficit having been annually accumulating for some years; now they are free from debt, notwithstanding the largely increased expenditure, and of large and successive improvements in the school buildings and appliances.

The Value of Knowledge to Working Women.

Half the human race are certainly entitled to consideration; yet it is only of late years that this now obvious truth has been admitted. Women have been altogether left out of the calculations of those who dispensed public information. We propose in these pages to create a new feature, in which we shall give information which, we hope, will prove interesting and useful to the wives of the working men, and the female members of their families.

It will be in no way necessary to enter upon the peculiar question of the equality of social or other rights of the fairer portion of the human race. That equality, as far as it is well founded in theory, will in due time make its way into practice. It will arrive as general intelligence proceeds. Without increased knowledge it will never be practicable. With knowledge a variety of excellence will spring up; the best qualities of the human family will assert themselves so universally that people will wonder that a question of equality was ever formally disputed. The painter and the poet equally challenge the admiration of mankind, although their arts are so different. The literalness of men and the imagination of women are equally admirable; and, when equally directed, instructed, and refined by cultivation, it is difficult to say which is the more attractive.

Our object, however, in this department will be to furnish useful, and we hope it may also prove entertaining information to working women, many of whom we have reason to know look into our pages. The uses of information are incalculable to the quick intelligence and in the dexterous hands of women. In the humblest ranks of life, few can estimate all its necessity and importance. Mr. James Hole, in his new and valuable work on the "Dwellings and Habits of the Labouring Classes," remarks upon the common complaint of the deficiency of good servants. There is no doubt that young people who go out into families might win for themselves positions of confidence and competence, and come to be counted as valuable members of the family in which they reside, if they had more general and appropriate information. There is no doubt that many women who have risen to the position of mistresses of establishments, and the possession of considerable means, would make far better managers of households, and know better how to consult the welfare of young people in their service, had they themselves, in early life, become familiar with that variety of womanly information which ought to be generally diffused. Ladies of cultivation themselves become conscious of the great difficulty they experience in the management of those they engage, owing to their want of information. Weariness, disappointment, and even worse evils, continually arise in a family through the ignorance and want of common information on the part of servants. A nursemaid without knowledge and good sense is often a calamitous inmate of a house. The little ones must be entrusted to her. The greatest part of their earliest years are spent in her company. Day and night they are under her care. Her language, her manners, her habits come under their notice, and form or infect their minds for good or ill. Her ignorant tales, her superstitious impressions, influence their imagination and live through life in their remembrance, beyond the power of the utmost solicitude of the mother to check, or of the governess, subsequently, to remove. How priceless would be the possession of young persons in these capacities, whose language was simple and correct, whose imaginations were tempered by intelligence, and whose knowledge of the ordinary and simple conditions of health enabled them to influence for good their young charges, and to regulate their exercise and their habits by safe and wholesome knowledge. Such servants would be prized. Instead of changing their situations, as is now the case, continually, they would frequently find a home in grateful families; and, when they had settled themselves in life, live in the honoured remembrance of those whom they had had the pleasure to serve.

The necessity of knowledge is now admitted in every circle of society. People who used to trust in ignorance for security and comfort, have now found out their mistake and their danger. Intelligence is the only thing that can be trusted, and everybody who is intelligent knows it. To the wives of working men it is no less important. The humblest knowledge is not only power, it is also property. It is economy as well as pleasure. What years of sickness, pain and crying, are experienced among the children of the ignorant through a want of the knowledge of the ordinary conditions of fresh air, suitable clothing, and a diet adapted by its quality, quantity, and times of taking it, to the various constitutions of the little people who have to be reared! What waste in the expenditure of the limited means of poor families occurs through want of knowledge of what to buy and how to buy it—through co-operation or otherwise—and how to cook it when bought! An intelligent wife, who gives her mind to household duties, and takes a pride in them, will better feed her family, and give more pleasure at table, upon twenty shillings a week, than an ignorant woman will upon two pounds. In these days the laws of health are so well understood that the doctor need hardly ever enter the household of the poor; whereas in unclean neighbourhoods, unclean houses, and ill-ventilated rooms, his services are constantly required. No professional man gives such honest advice as the doctor. If a tenth part of it was taken he would seldom have to be called in; but it is not taken, because those to whom it is given have not intelligence enough to see its value, nor self-control enough, nor strength of will enough, to act upon it, if they do discern its importance. We say nothing here of the advantage of personal knowledge, veracity, simple directness of speech, expressions of good taste, habits of order, and merciful strength of will: habits of self-trust, of self-reliance, of fortitude and independence of character, of moderation of speech, evenness of temper; all these are qualities which insensibly communicate themselves throughout the little household, in which they are silently exercised. The benefits which thus result to young people in the future of their lives, can never be over-estimated. In a thousand ways we might show, if we went into particulars, that it is quite time systematic attention was given to questions likely to inform and interest women. It is quite as important to the working man that his wife should have information as well as himself; and if we should succeed in supplying information, from time to time, which should prove attractive to the wives and daughters of our readers, it will certainly increase the usefulness of this publication

The Working Women's College, London.

This useful institution was founded with the view of affording working women an opportunity of supplementing the education they have received, more or less satisfactorily, as school children. The term "working women" is used to represent all the various classes of women who are obliged to work for their living, and who therefore, for that reason alone, cannot obtain teaching during the day. The various classes of bread-winners, teachers, shopwomen, workers in all kinds of trades, domestic servants, have enjoyed, very probably, widely different opportunities of education; and coming to a conviction that schooling "should not cease," to use some words of Mr. Maurice, "but that the lessons of life and the lessons of books should always go on together, illustrating and interpreting each other," they will commence self-improvement from different starting points; some will desire quite elementary teaching in reading and writing, while others wish instruction in physiology, Latin, &c. In the arrangements of classes the promoters have studied to supply these varying needs, while in the social life of the coffee-room the students, whether from the preparatory classes or from the advanced college classes, possess the opportunity of meeting on equal grounds, all seeking self-improvement, all helping to create around them an atmosphere of happy interest and friendly intercourse.

The founders of the institution took, as a model of their mode of working, the Working Men's College in Great Ormond Street, in which teachers who have enjoyed large opportunities of acquiring knowledge and culture give instruction and companionship to those who have less leisure, and have had less happy advantages of learning, as a matter of simple duty belonging to their larger powers of usefulness. The name "college" was adopted because, as in the case of the Working Men's College, it was felt to express, better than any other title, the fact of a number of persons forming themselves into a society, for the purpose of carrying out a common work.

Classes have been formed for instruction in the following subjects:—Arithmetic (elementary), arithmetic (advanced), with the elements of algebra, geometry, grammar (elementary), grammar and logic, English composition, English literature (reading aloud), history (English), history (general), social economy, physiology and the laws of health, geography (elementary), geography (advanced), structural botany, drawing, drawing with colour, vocal music, Latin, and French. The college fees are one shilling each class per term, with the exception of the French class, in which the fee is three shillings, and the drawing class, in which the fee is two shillings.

The teachers are Miss Louisa Drewry, Miss Ellen Drewry, Mr. A. Grugeon (certificated teacher of botany, Science and Art Department of Privy Council), Miss Harrison, Miss A. J. Harrison, Miss Hill, Miss O. Hill, W. B. Hodgson, Esq., LL.D., R. B. Litchfield, Esq., B.A., Trinity College, Cambridge, Miss Malleson, Miss A. Malleson, W. T. Malleson, Esq., A. J. Munby, Esq., M.A., Trinity College, Cambridge, Miss C. Scott, A. Sonnenschein, Esq., Mr. G. Tansley (Fellow of the Working Men's College), and Mrs. G. Tansley. There are also several preparatory classes, for preparing pupils to enter the elementary classes of the college. These are conducted by Miss Croyden, with the assistance of some ladies and gentlemen. Among the occasional lecturers are to be found the names of J. E. Cairnes, Esq., Professor of Political Economy in Queen's College, Galway; John Chapman, Esq., M.D., Miss Frances Power Cobbe, M. D. Conway, Esq., Rev. J. Ll. Davies, M.A., F. Harrison, Esq., M.A., J. Hinton, Esq., M.R.C.S., T. Hughes, Esq., M.P., Gottfried Kinkel, Esq., Ph.D., Rev. F. D. Maurice, M.A., and J. R. Seeley, Esq., Professor of Latin in University College, London.

The college is situate at 29, Queen Square, Bloomsbury, London, and no students are admitted under the age of fifteen. The institution is governed by the Council of Teachers, to which students are gradually to be admitted. There is a coffee-room, which is provided with periodicals, newspapers, &c.

Mr. John Stuart Mill, M.P., Miss Harriet Martineau, Vernon Lushington, Esq., Frederick Harrison, Esq., Lady Lyell, Mrs. P. A. Taylor, Mrs. Frederick Hill, and many other ladies and gentlemen, take a deep interest in the progress of the college, and have placed themselves on the list of subscribers to its funds.

Respecting the objects of the Working Women's College, the honorary secretary, Mrs. F. R. Malleson, said, in her address at the opening of the institution, October 26th, 1864:—"We hope to attract to the college those who are in our sense 'ambitious' for themselves—those who feel that they have powers of intelligence and emotion which they have hitherto not cultivated enough—those who would humbly learn to perceive a little more of the wonders and beauty which lie hidden around them in this wonderful world—those who feel that uncultivated and thoughtless women cannot be the real companions and helpmates of cultivated and thoughtful men—those who see that by endeavouring to make themselves nobler human creatures they not only make themselves more fit to fulfil the larger duties of life, but the smaller—I would even say the smallest. For what are called the 'special duties' of women—the administration of home, the management of children—I may be permitted to say no culture can be too wide or too deep, and I think it would not be difficult to show that a girl who trains herself by the learning of a language, or the study of physiology, or history, or drawing, in habits of close attention to small things, in persistency of work and reverent patience, would make a better shopwoman, a better servant, a more valuable worker in any and every department of labour."

True and earnest words these. They breathe the real spirit of self-help and progress, and open to our working women—the co-workers of man in the great world of labour—a prospect of a far wider range of usefulness than was ever before dreamed of.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; Rev. J. Begg, D.D.

"All labour is sacred."—*Carlyle.*

THE WORKING MAN.

APRIL 28, 1866.

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Working Class Character in Parliament.

The Parliament and the country have been engaged in an unusual way, and with an unusual subject. Our first orators and most influential papers, dailies, weeklies, and even quarterlies, have been discussing the character of the working class. The new feature, however, of the case is, that the charges supposed to be made against them, and which certainly had a suspicious appearance, have been mostly explained away or denied. The disposition of the "governing classes," as they have been politically termed, is unquestionably one of good feeling; and we believe they are little disposed either to speak ill or mean ill; and that if they have, in some individual cases, been betrayed into the use of words of wholesale imputation, their language has been in excess of their deliberate intention.

This theory of their language has corroboration in the course of explanation pursued by the most important person of the whole—namely, Mr. Lowe; who declares that he had in view only constituencies in which are found a lees of the venal, violent, and inebriate. We see no reason to refuse this amended statement. If the inclusive character of the imputation is denied, why should not the denial be accepted? It is no part of good policy to persist in maintaining an accusation. The withdrawal of it is an advantage. The character of the accused then stands clear. The moment the author of a charge restricts it to a portion of a class, he acquits the whole. No class is perfect. The highest have damaged members among them: and the great body of the people are not to be held as unfit for political recognition because some among them, who have never been admitted to citizenship, are wanting in civic virtues.

Mr. Lowe himself is admittedly a man of commanding intellect. He is as impatient of the ignorance which he has had often to confront in the House of Commons, as of that which exists among the people. Feeling his own superiority, he would prefer a despotism of intelligence to a republic of incapability. He is himself an able and faithful administrator. But it will not do to trust to this. After him may come one who has power without intellect and good will. A people who go wrong by their own act are in a fairer way to learn self-trust and acquire wisdom, than a people who go right by the act of another.

Against Mr. Lowe's qualified and half-retracted charges—for he must be held to have made substantial charges against the people—it cannot be said that his political enemies have put the disputed construction upon his words. His own party and the whole of the "Opposition" in Parliament cheered his language, and understood him as the public have understood him. Against whatever he said, or was understood to say, there has been a series of statements made in the House of Commons which confer the highest general character upon the people: and the Government bringing forward a measure for the enfranchisement of an influential portion of the working class, and volunteering to "stand or fall" by their Bill, settles conclusively the fact that the character of the working class is reliable and good, and such as entitles them, upon the highest authority, to enter the ranks of the governing classes.

Of the right feeling towards them, and respect paid them, the conduct of Lord Elcho, who went the other night to a great public meeting of the working classes in London to explain his conduct, which had been called in question by them, is a conspicuous instance. The meeting was, to some extent, prejudiced against Lord Elcho; but they heard him, as became them. He said, with great manliness and fairness, that had he unwittingly wronged them, he regretted it, and would apologise, if it should appear that he had done so, which he denied. The word of a lord is to be believed as well as that of a workman, and it was to the credit of the meeting that they as readily accepted it. Lord Elcho treated the working men as equals in all that pertained to their honour and character, and it was good sense and courtesy to treat him with consideration and hear him with fairness and respect. Amenities like these between lords and working men show that the character given to the people by the Government has been well earned and is well held.

Industrial Art in Paris.—The "Union Centrale," the object of which is to do for France what the South Kensington Museum is doing so well here, is pursuing its course with great spirit. The lecture session commenced on the 9th of the present month of April, and lectures will be given three times a week during the session. It will give an idea of the ability called in aid of the society's efforts to mention that, during the current month MM. Bauderon, Caffe, Rousseau, De Longpérier, and Guillaume, all members of the Institute of France, will address the young working men of Paris on architecture, sculpture, and painting; on sanitary questions connected with the artistic professions; on chemistry in relation to the industrial arts; on the teaching of drawing; and other subjects connected with art education. The library of the "Union Centrale" is growing rapidly in importance, and is open every evening from seven to ten o'clock.

The "Working Man" Lifeboat.

Few industrial occupations entail more of fatigue and danger than that of the seaman. He has frequently to contend with difficulties compared with which those in most other departments of labour seem insignificant, and which demand from him the continual exercise of a steady hand and unfailing nerve—two qualities acquired by a training, commencing in boyhood, of the severest character, and a discipline often more strict than ever was enforced in the best regulated of factories. Romantic and pleasant as the life of a sailor may seem to those who have seen merely the sunny side of it, or who have only beheld the mariner on shore, enjoying—not always wisely—his well-earned holiday, it is certainly anything but one of ease or indolence when once his vessel has left port, and has commenced her silent route across the trackless deep. There is much of discomfort and hardship in the seaman's lot. For months a stranger to the pleasures of home, he has to toil from sunrise till dusk in his floating prison, and when at night he retires to his hammock, he knows not whether the morning will find his ship still proudly flying before the favouring breeze, or defiantly battling with the merciless fury of the tempest.

The large number of shipwrecks annually occurring affords a saddening indication of the hazardous nature of the seaman's calling. The amount of property thus destroyed must be immense. The value of one ship—the *Golden Age*—which was lost some few months since, was estimated at £200,000; and other vessels have been valued at even higher sums: but what of the many lives which have been lost with the ill-fated ships?

We can appraise the worth of gold, silver, and merchandise; but who can fix the value of human life? The lost wealth may be replaced, but the lost lives—never!

There are few working-class families which have not some friend or relative following the occupation of a seaman; and when a gale has been sweeping with destructive violence around our coast, it is painful to note the almost frantic eagerness with which the list of wrecks and disasters at sea is perused by those who are anxious to ascertain the fate of those they loved, and whose arrival home they were hourly expecting.

Sometimes, when a vessel has been lost, the crew have been rescued by one of the boats belonging to the National Lifeboat Institution, and the newspapers are full of eulogies of the gallant feat; but these praises—truly deserved as they are—fall far short of those accorded by the relatives of the men who, through the humanity of man, have been thus providentially rescued from the very jaws of death. We have beheld the lips of the sturdy artisan quiver with emotion as he told us how his brave boy, who, with his fellow-sailors, had given up all hope of surviving the terrible storm which was tossing his ship to and fro, like a child's plaything, on the raging waves, was saved at last by the lifeboat and its dauntless crew; and, knowing this, we are not at all surprised that very many working men should have manifested a strong desire to assist in increasing the number of lifeboats, through the agency of which so large a number of valuable lives have been preserved from the death which at one time seemed imminent.

Consequently, we have much pleasure in announcing our willingness to assist in carrying out the proposal which appeared in No. 13 of the Working Man—namely, that its readers should raise a subscription among their

friends for the purpose of building a Lifeboat, which shall be exhibited at the forthcoming Exhibition at the Agricultural Hall, London, and publicly presented to the National Lifeboat Institution, in the name of the Working Men of Great Britain. With every copy of the present number of the Working Man a subscription list has been issued, containing space for sixty contributions, many of our subscribers being employed in large factories; but the smallest sums will be acceptable in aiding this philanthropic object. It should, however, be stated that, as the Exhibition is to take place early in the autumn, and the boat will have to be built in the meantime, the effort to raise the necessary amount (£400) should be made at once. All subscriptions should be forwarded as soon as possible to the Editor of the Working Man, La Belle Sauvage Yard, London, E.C., enclosing the amount of subscriptions in postage-stamps, or by Post-office order, payable to Messrs. Cassell, Petter, and Galpin.

We shall publish each week, in the Working Man, the amounts received, with the names or initials of the collectors.

Cockerill's Manufacturing Establishment

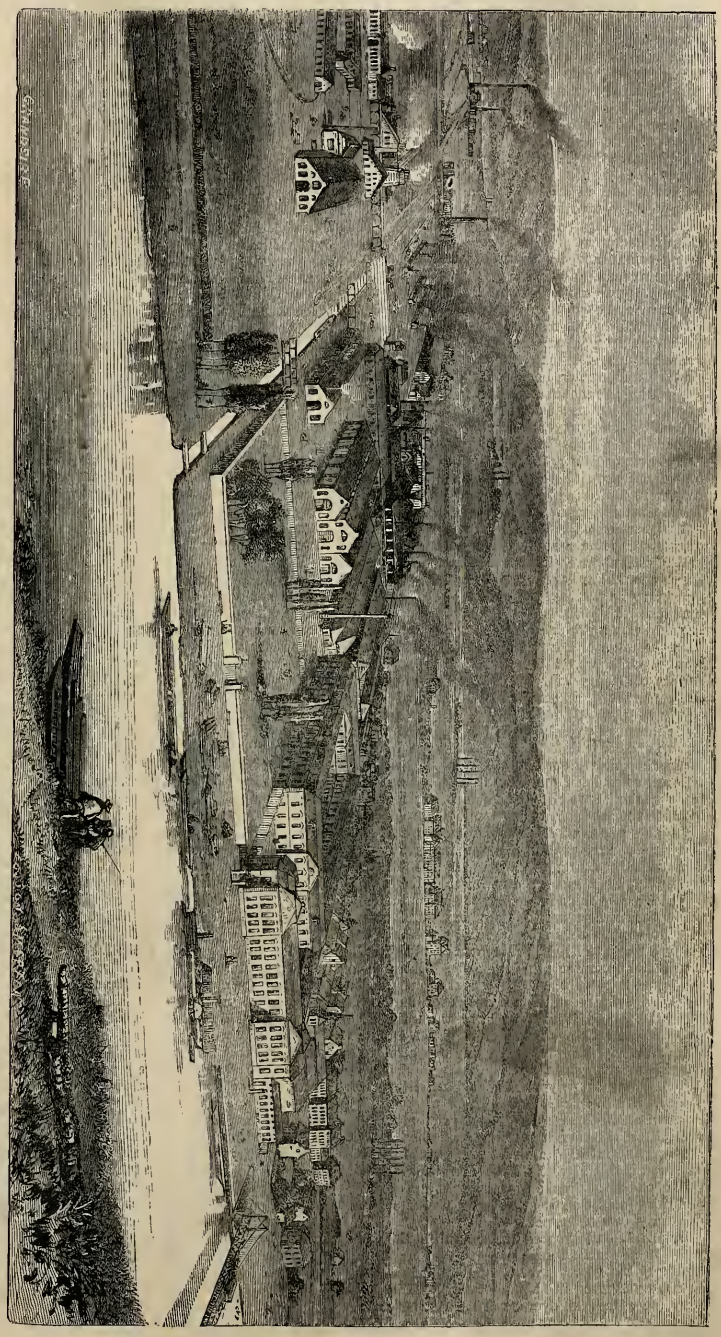
AT SERAIGN, BELGIUM.

This establishment, which stands about a mile to the south-west of Liége, is a vast collection of coal-mines, blast-furnaces, forges, shops for working iron and steel, and machine-shops for the construction of steam-engines, &c. The engraving will give the reader a general idea of the distribution of the buildings. In front, the river Meuse flows from the right to the left, affording a very favourable means of transport, together with the neighbouring railway, for everything required by the establishment or produced in it. On the left, opposite the little canal, a small portion of what is called the "Quartier Saint Georges" is shown. On the other side of the canal, above the garden, we see a succession of workshops, furnaces, foundries, &c.; and beyond are the coke-ovens and the mine "Henry Guillaume," the railway from Namur to Liege, the "Quartier Saint Leonard," and the Collard mine. Following the course of the river to the right, we have before us the ancient château formerly occupied by the bishop-princes of Liége, along which passes, in continuation of the suspension bridge, the road from Messe, at the extremity of which begins the path which leads to the railway station. Lastly, at the right extremity commences the village of Seraign, which in 1821 contained only 2,000 souls, but has now between 10,000 and 11,000.

The honour of creating this establishment, renowned throughout the world, is due to John Cockerill, who, with his brother Charles James, acquired from the Netherlands Government the château of Seraign and its dependencies, to establish machine-shops for the construction of steam-engines, &c. In 1823, John Cockerill became sole proprietor. Seraign then took a considerable expansion; so great, in fact, that William I. of Holland wished to associate the State in the undertaking. The revolution of 1830 broke the contract. John Cockerill sustained the establishment alone, and by means of the railways, which rapidly multiplied at this period, made his workshops of greater importance than ever. Unfortunately, the financial and manufacturing crisis of 1839 surprised him amid fresh plans for the development of the works hitherto so prosperous. He was compelled to make an arrangement with his creditors, although his assets were 26,000,000 francs and his debts 18,000,000 francs only. But he did not lose heart; though it is probable that the violence of his emotions shook his vigorous constitution. He made a journey to Russia to effect an arrangement that would repair everything; but a few months afterwards, on his way back to Belgium, he died almost suddenly at Warsaw. The establishment was saved from immediate ruin by the formation of a company, which has continued the working with remarkable success.

John Cockerill was born at Haslington, in Lancashire, on the 30th of April, 1790. His father, William Cockerill, a skilful artisan, was expatriated in 1797, and after remaining some time in Sweden, established himself at Verviers, where he constructed machines for carding and spinning wool, which operations had previously been done only by hand. In 1807, William Cockerill established himself at Liége, where he constructed similar machines and others for weaving cloth. In 1810, in recompense for what he had done for the prosperity of Liége, William obtained full French naturalisation. He retired from business, and his two sons, John and Charles James, succeeded him. The rest has been told.

John Cockerill was a draughtsman in the workshops of Seraign; he united to a noble and generous soul the qualities which distinguish superior men. Gifted with a vast memory, he stored up only useful matters; he was reserved in his speech, and very simple in his manners, so that every one felt at ease in his society; his workmen looked upon him as a father, and experienced no embarrassment in his presence.



JOHN COCKERILL'S MANUFACTURING ESTABLISHMENT AT SERAIGN, BELGIUM.

The Soane Museum, Lincoln's Inn Fields.—The trustees of this institution, which is situated on the north side of Lincoln's Inn Fields, have issued a notice intimating that the establishment is now open to the public, and will continue so on Wednesday, Thursday, and Friday of the months of April, May, and June, and on Wednesdays in the months of July and August. The collection contains some fine specimens of Greek art,

*The Textile Manufactures of England.**

BY WILLIAM ROSSITER, FELLOW OF THE WORKING MEN'S COLLEGE.

IV.—FIFTEENTH, SIXTEENTH, AND SEVENTEENTH CENTURIES.

The civil wars of the 15th and 17th centuries did the manufactures and trade of England both harm and good. A foreign war frequently does more good than harm to the trade of a nation, but a war on its own soil is generally destructive, though the English civil wars have not proved so. A foreign war frequently infuses into the trade of a nation some share of the national spirit it awakens, and calls forth energy in seeking fresh markets and fresh sources of supply when old ones are cut off. The commercial life of a country sometimes starts afresh with renewed vigour and improved organisation after a civil war has deeply stirred, without, however, destroying, its national feelings. Such was the effect of the English civil wars. Checked for a time, the trade of the nation moved with increased rapidity when peace returned. During the civil war of the 15th century, the towns emancipated themselves, and, by purchase of charters, obtained the right to appoint their own magistrates and to regulate their own internal affairs. The laws respecting manufactures and commerce, made in the 15th century and earlier, have for their chief object the getting as much money, in the shape of taxes, as possible. Afterwards, they took the form of protecting laws, preventing articles that could be made at home from being brought from abroad.

However useless or injurious these laws may be considered now, there can be little doubt that they were useful in the infancy of our manufactures, not as being absolutely good in themselves, but rather as calling out, by force of law, that support of home manufactures, when struggling under difficulties, with a prospect of success, which should have sprung from patriotism. The plant may be healthy, the ground good, and the fruit desirable; but the early life is tender, and requires care and protection.

In the reign of Edward IV., the importation of woollen cloth was attempted to be prevented. An act of Henry VII. fixed the price of scarlet cloth at 16s. per yard, and of cloth of other colour at 11s. Under Henry VIII., the woollen trade increased greatly, until the war with Spain put an end for a time to the trade in the Netherlands, then nearly our only market. Both nations suffered so much from this that a commercial truce was made, to allow of trade being resumed between them.

In the reign of Charles II. was passed the Navigation Act, prohibiting the importation of any goods into England, or any of the English dominions, by means of any but English ships, excepting only ships belonging to the countries of which the imports were the produce. The object of this was to secure as much as possible the English trade to English merchants and sailors.

The silk manufacture in England dates from the latter part of the 15th century, but was of little importance until the reign of James I. Queen Elizabeth is said to have worn the first pair of silk stockings made in England, and the story adds that she prohibited any one else from wearing stockings of that kind, being desirous of enjoying a monopoly no doubt pleasant to her vanity. Up to this time, stockings were usually made of cloth, though occasionally silk stockings were obtained from Spain. The Arabs had carried silk-weaving into Spain, and the Normans had introduced it in Italy. In 1520 France conquered Milan, one of the great silk-weaving towns of Italy, and introduced the art into Lyons, now the great silk emporium of France.

James I. endeavoured to naturalise the silk-worm in England, and planted a great number of mulberry-trees for them to feed on, but it came to nothing. Failing in this, he invited silk-throwsters (or spinners), dyers, and weavers from the Continent, and the manufacture of broad silks was established.

In 1629 the silk-throwsters were incorporated by charter, and in 1661 the company employed some 40,000 men, women, and children in London. In 1685 some 500,000 Protestants, chiefly weavers, left France, rather than conform to the Catholic religion; and of these, about 70,000 came to England, giving, by their knowledge and skill, great impetus to the silk trade. A great number of these refugees settled at Spitalfields, where some of their descendants still carry on the same trade.

In 1718 the first silk mill was worked in England, set up near Derby by an Englishman named Lombe, who went to the silk-weaving town of Piedmont disguised as a common weaver. Obtaining entrance by bribery, he watched closely every process of the manufacture, and made drawings of the machinery. When he was quite familiar with the whole art, he returned to England, carrying with him the fruits of his trouble, acquired with more cunning than honesty, and for which he nearly paid with his life, being discovered, and narrowly escaping, at the moment of his departure.

Lombe's mill cost £30,000 in the erection. This sum he is said to have raised by setting up small machines, worked by hand, by means of which he wove and sold silks at prices below those of the Italian make, and yet high enough to give him a good profit. He took out a patent for fourteen years, but nearly the whole of the time was consumed in erecting his gigantic mills, five stories in height, and one-eighth of a mile in length. He applied for a further patent, but it was considered too important a matter, and a grant of £14,000 was given him instead of the patent.

* Concluded from page 234.

*Working Men's Clubs.**

BY THE REV. H. SOLLY.

THE HISTORY OF A FAILURE.

The history of every human enterprise contains, more or less, a record of failure. Those whose success alone is manifest to the world have had many secret disasters or checks. The people who succeed in this world are those who *learn* from failures, *without being discouraged by them.*

Having remarked on various successful clubs, and on some partially so, let us now glance at the reasons given for failure complete enough to end in closed doors. About twenty such have come to my knowledge out of 300 clubs established, making little more than six per cent., which is a wonderfully small proportion, considering how we have all had to grope our way, and learn by (often) trying experience.

One night in December, 1862, two zealous friends of the working classes were sitting together in the town of S——, deeply deploring the amount of intemperance and vice among the active workers around them, and feeling utterly disheartened at the powerlessness of all efforts to check it. At the same time I was posting to one of them the prospectus of our Union. On receiving it the next morning, my friend ran with it to his companion of the previous night, and in high glee exclaimed, "This is the very thing! The problem is solved for us. Let us get to work immediately." They did so with their characteristic energy—distributed our papers widely, collected funds, got up a capital meeting, which was attended by the members for the borough, several of the clergy and influential inhabitants, and a great number of working men. Before long they had established a large and prosperous Club in admirable premises, and had enrolled from 1,000 to 1,200 members. But alas! by the summer of 1863 there were "roots of bitterness" springing up within the club, while radical defects of organisation also began to tell on its prosperity, and in about a year after the Club was closed. In the autumn of that year, 1864, I visited the town for the first time, and met, by invitation, its principal supporters and managers, among the gentry, the tradesmen, and the working men. At two conferences (the second being more largely attended) the whole question of the causes of its break-down was very fully gone into, and the following were generally admitted to be the chief reasons of failure:—

1st. The double Committee system—one of gentlemen and another of working men.

2nd. The admission of youths and lads.

3rd. A steward who got drunk.

4th. Introduction of Theological questions at the Discussion meetings.

5th. Not enough management and supervision by the Committee.

In addition to these formidable elements of mischief, many speakers alluded to the unhappy jealousies that sprang up between different leading members, and the factions that were consequently formed. All agreed that there was not enough of the corporate or "society" spirit. There seemed no bond of union among the members; comparatively few who seemed to be animated by a disinterested desire to promote the common good. The following are a few of the remarks made in the course of the two conferences:—

"We began with too great expectations, and, therefore, on too large a scale. The rent of our premises was very high (more than £60), and the rate of subscription (1d. per week) too low. Hence it could not be self-supporting." *Comment.*—This last opinion, I think, was mistaken; for their premises were large enough to accommodate the average number—say, one-third—who would attend at any one time on ordinary nights, and the two-thirds, or three-fourths, likely to be present at entertainments, even if they had retained 800 or 900 weekly members; for that would have given them an income of about £180, amply sufficient in itself, with good management, to have paid all ordinary expenses. Then, the same good management would have got a considerable profit from Penny Readings, Concerts, &c., and also from the sale of Refreshments.

"We had too much success at first. We thinned the public-houses to such an extent, that their owners took the alarm, and used a great many new devices to compete with us." *Comment.*—No doubt this was true. Soon after the Club was opened, one of its members wrote me thus:—"Our Club, although it has been in operation but a few weeks, has wrought such a blessed result, that there is scarcely a street or a poor man's home in S——, but what has felt its cheering, happy, and peaceful influence. Here are two significant facts—*The wives of our labouring population are rejoicing in the establishment of the Clubs;* and those who thrive on the vices of the people are praying that the Club may soon be burnt to the ground. . . . I have examined the books of the Police Office, and find that, from the time our Club was opened—on the 28th of February—up to the 9th of April, there has been but one case of 'drunk and disorderly;' while before that time scarcely a day passed without one or more, and during the corresponding period in last year there were no less than twenty-six cases."

Mr. ——, a working man, and one of the original active promoters of this Club, in writing to the *Times* soon after, well observes: "What, it will be asked, are the advantages to be gained by being identified with these Clubs? The blending instruction with recreation and amusement. Among the great number of men who thus congregate together are to be found the better class of workmen, the indifferent, and those who previously spent their spare time in drinking and loose company, with some even of the offscourings of society."

There can be no doubt concerning the great amount of good which this Club accomplished during its brief career. After it had been shut up some time, a working man coming up the street, sorrowfully asked a member of the late committee when it would be opened again, adding, "I never used to spend less than twelve shillings a week in that public-house (pointing to one across the street) till the Club was opened."

The remarks were continued thus:—

"Jealousy and ill-feeling showed itself between the two committees as soon as the first difference about spending money arose."

Comment.—I have already dwelt fully on this fatal mistake of having two Committees.

"There was great opposition shewn to the Club before long by the religious bodies of the town, both Church and dissenting."

"The religious discussions did us great harm. One question was, 'Is the Bible the only proper rule of life?' and this raised a great stir among the Roman Catholics, both in the Club and out of it."

"When the Committee, by a majority of one, stopped the discussions, the Club went down at once. Scarcely any came to the discussion meetings afterwards."

"The Committee ought to have excluded Sectarian publications if they excluded religious discussions."

"The Club had gone before those discussions began. There was enough to ruin it without that."

"There wasn't enough supervision as to the subjects for discussion generally. No limit, either, as to the time for each speaker."

* Continued from page 250.

Comment.—While I believe that Discussion meetings are of the highest value in these Clubs, so long as Theological topics are excluded, there is no doubt, as I have often urged, that, independently of higher grounds, their introduction is most mischievous, from the strength of feeling, not to say passion, aroused by their leading to the inevitable result of members becoming irritated with one another, and leaving the Club from the unpleasant feelings thus engendered. There can be no "good fellowship," which is the basis of those Social Clubs and Institutes, unless men consent to keep their strong antipathies or hostile convictions in abeyance while meeting on a common social platform, and make their Club thoroughly unsectarian in every sense of the term. But it does seem very sad that large numbers of the religious bodies in the town, when they saw practices going on in the Club to which they justly objected, should have manifested the active hostility to it which they appear to have done, instead of helping its better-disposed members and devoted friends to improve its constitution and management. They would have had abundant power to do this had they given sympathy previously. There is too much reason to fear that many of the followers of Christ in this town lost a great opportunity of serving their Lord when they joined in denouncing and closing, or refrained from assisting, the S—— Working Men's Club and Institute.

"We (the Committee) were always a crotchety lot—we could not agree very well together, and then we consulted the opinions and prejudices of the outside public too much. Working men must manage their own club, and go their own way, without minding what is said about them."

"There were men in that Club from the first who meant death to it."

"When the religious discussions were stopped, the Saturday evening entertainments fell off. Some of our best singers stayed away."

"Ay, but the chief cause of their falling off was that the pianist, whom the Committee had engaged at 2s. a night, was offered 5s. by a publican, and left the Club."

"Well, but the Committee offered him anything reasonable to come back, and then found he had been promised a situation in addition to his pay. We tried everywhere, in vain, to get another in his place."

"The expenses being so heavy, a great deal had to be done in the way of getting up entertainments. But all that took up a vast deal of time—more than the Committee could afford. And no regular and suitable chairman was appointed, either for the 'Free-and-Easy' or for the Discussions."

"There was sometimes great uproar and confusion . . . a general want of good management, in fact."

One of the principal founders and managers, after summing up the discussion and admitting the correctness of most of the foregoing remarks, concluded by saying, "But all these difficulties and disasters might have been lived down had not the expenses been too great for the income. Nothing else would really have broken up the Club."

Comment.—No doubt the deficiency in the balance-sheet finally caused the Club to be closed; but the expenses, as I said above, were not at all out of proportion to what the income could and would have been with efficient management. The real, essential defect, next to the double Committee, was the disproportion between the magnitude of the operations *and the staff to conduct them.* There was much zeal and judgment, much disinterested and efficient labour, but not enough for the undertaking; and a good deal of what there was does not seem to have been always applied in the right place. If a few of the gentlemen who formed the upper house had sat instead on the working men's committee, winning their confidence and just supplementing their efforts; if other gentlemen, outside the Club, belonging to the various religious bodies, had shown cordial sympathy and given judicious help, in all probability a very different result would have been obtained. The fact must never be lost sight of, that to manage and work a Club and Institute a very considerable amount of time and energy must be devoted to it, proportioned to the scale on which its operations are conducted.

But the effort was not in vain. It left some good results which will not soon pass away. And many of those who, through the melancholy failure of that club, are now gone back to their old wasteful and demoralising ways, or sunk again in stupid apathy, will occasionally be the better for remembering that they once rose out of that state into one better and happier. "No effort is lost," says one of England's greatest men; least of all an effort bearing such good fruit for a time as the one above described. May its benevolent promoters keep up heart and hope, learn by experience, and go to work again at the fitting season with renewed energy.

A letter from the late President of the Club, just received, says, in answer to my inquiry, "There is a Temperance and Benefit Club now in S——, doing part of what a Working Men's Club would have done better. Some of the most useful men in the town, however, have joined it."

In a former note he expressed a great hope that they might be able to begin once again on a smaller scale; but hitherto they have not seen their way to this.

Facts and Memoranda.

The late Mr. Marner (of the firm of Laurie and Marner, coach-builders, Oxford Street) has bequeathed legacies to clerks, assistants, and others; also legacies of £10 to each of the numerous workmen employed by him.

In Mr. Siemens' gyrometric governor for steam-engines a large metal cup dips into water, and produces a regulating effect by its overflow, in combination with wheels by which that effect is transmitted to the engine, whatever may be the amount of resistance. In this way the defect in action upon the valve which prevails in Watt's governor is successfully overcome.

The great prosperity of Marseilles is owing to its soap manufactories, which are sixty-two in number, and annually consume 1,200,000 cwt. of oleaginous seeds, 150,000 cwt. of olive and other oils, 250,000 cwt. of raw sulphur, 425,000 cwt. of soda, 29,000 cwt. of nitrate of sodium, 165,000 cwt. of sea salt, and 200,000 tons of coal. Every hectolitre of oil yields 159 kilogrammes of soap.—*Galignani.*

Patents.—It has been decided by Vice-Chancellor Wood, in the case of "Dangerfield *v.* Jones," that if, having a particular purpose in view, a person takes the general principles of mechanics, and applies one or other of them to a manufacture to which it has not before been applied, this is sufficient ground to warrant an application for a patent, assuming such manufacture to be new, desirable, and of public utility.

Singular Effect of Compressed Air.—The effect of compressed air in determining the entrance of a large quantity of air from the atmosphere, was curiously exemplified by a recent experiment of M. Galibert. He took one of the bags he uses with his respiratory apparatus (described in our No. 12), which held about six-and-twenty gallons, and had an aperture at the top about four inches wide; and, keeping the aperture open, projected into the middle of it, during four or five seconds, a small puff of air compressed by the mouth and lips. After this he closed the aperture by pressing the edges together with his fingers, then shook the bag, and struck the bottom of it against the ground. It was now one-third full of air—that is, contained nearly nine gallons, while the air which had caused the entrance of this large quantity did not amount to half a pint. He repeated the operation twice, which made the bag quite full of air. The development of this principle might tend to useful results in ventilation.

Protection of Iron from Oxidation.—The extremely thin sheets of iron which may now be obtained, some of them weighing no more than 0·36 gr. per square inch, and not being more than the 4,800ths of an inch in thickness, have been noticed as possessing to an extraordinary degree the power of resisting oxidation. There is no doubt but that this is attributable to a fused layer of magnetic oxide, with which they are always covered; and the fact has been applied to the protection of articles of wrought iron. They are embedded in a pulverised layer of native oxide of iron—hematite, for instance—and kept at a full red heat for several hours, after which they are allowed to cool gradually. Plates treated in this way are perfectly coated with the oxide, and are well suited for ship-building. A combination of the oxides of zinc and iron, formed by the use of oxide of zinc in a similar manner, produces a black coating, which is, perhaps, even more effective.—*The Scientific Review.*

Electricity in a Cotton Mill.—The *Lowell* (Mass.) *Courier* says: "It is a general truth that friction developes electricity, and most workmen know that a machine belt at high speed, by its friction with the air, is highly electrified. It has for years been a common experiment for a workman to light gas burners by holding one hand to a fast-going belt, and the other to the open burner. This matter was curiously demonstrated in the Appleton Mills, of this city, on Wednesday. A strong smell of fire being noticed, the premises were carefully searched, and a small quantity of cotton lint, inside a belt casing, was found on fire. The lint lay upon a beam which was within four inches of a belt some fifteen inches wide, and moving some 220 revolutions a minute. In the beam was an iron bolt, the head of which was towards the belt. From the belt to the bolt was passing a stream of electric sparks, which had set the cotton lint on fire. After attending to this case, Mr. Motley, the agent, opened the casing of a similar belt in another mill. The beam in this case was fourteen inches from the belt, but the stream of electric sparks was at once seen jumping across the beam, although it had not set fire to anything. Perhaps some of the cases of fire from supposed 'spontaneous combustion' are due to electricity from machinery. The subject is an interesting one for investigation, and probably a profitable one."

A Bird's-eye View of the House of Commons

DURING THE GREAT FRANCHISE DEBATES.

The reputation of the House of Commons is rising: not merely that its eloquence is sustained, and even is increasing, but that the public interest about Parliamentary proceedings is greater than ever, and continually augments. Public attention concentrates itself upon the characteristics of our law-makers. This is a wholesome sign. For good or evil, the English House of Commons is one of the most powerful agents known. For whatever improvement can come through political arrangement, the British people must look there for it. The composition of the House of Commons—the proceedings in it—are, therefore, of increasing importance, and it is useful that its conduct should be scanned, and the principles avowed there understood.

The House was again crowded on April 12th, when the debate on the second reading of the Franchise Bill came on, as it was on the previous occasion, described in a former number. Mr. Gladstone—no longer "dull" by design, as he has confessed, as on the night when he introduced the Bill—approached the table this night with an elastic step, and in an animated voice announced that he should now supply any defects in the way of giving reasons for the Bill, which were remarked upon in his first speech. He took a high tone. He said that successive Parliaments—that both great parties in it—had equally pledged their honour that Reform should take place; and the obligations of their own honour were reasons sufficient and imperial for introducing the Bill. Then he convicted Mr. Horsman of having formerly advised the course the Government now take, and of having been the "hot" advocate of piecemeal Reform. It is well known, as Lord Palmerston once remarked to the Member for the Ayr Burghs, that he thought bit-by-bit Reform was the right course to take. Mr. Gladstone thrust at Mr. Disraeli, who had claimed to deal with the enfranchisement of the people with "sincerity." He twitted Mr. Disraeli with having afterwards retracted his profession, hinting that he had had experience in that art; for

"Ease will retract vows made in pain."

He next attacked the *Quarterly Review* (his friend, the publisher, having supplied him with an early copy) and analysed its statements with irony, scorn, and sparkling vehemence. Lord Cranbourne is understood to be the author of the article which Mr. Gladstone replied to. Turning upon Mr. Lowe, he answered him, amid a storm of cheers, prefacing his reply by remarks of high courtesy, which is the grace of our Parliamentary manners, saying, what we repeat here in fairness to Mr. Lowe, who is very much attacked at this time. Mr. Gladstone said, "He is a man of whom I freely confess that, in my judgment, he is not more eminent for his extraordinary intellectual power—in many respects never surpassed, and rarely matched in this House—than he is entitled to the utmost respect for his integrity." Mr. Gladstone was never more varied and vivacious than in this great speech. There was fire in every passage. His quickness of repartee is unsurpassed by any living speaker—unsurpassed is too feeble a word: it is unequalled. He caught up every interjection. He challenged every cheer from the Opposition. Each emotion of the opponents before him he remarked upon. Nothing escaped him—nothing disconcerted him. His energy of speech was so striking, that his lowest tones were heard in the galleries. He sat down with one of the shortest perorations on record,

praying the House to use no more "mocking words," but to "be wise, and be wise in time." These words—pronounced with immense force and earnestness—were followed by prolonged cheering.

Mr. Lowe rose to say he should speak in reply on another evening. He had then to protest against the "wilful" and gross misquotation to which his words had been subjected. These were not happy terms to employ. "Wilful" is an ugly word to use when complaining. To charge others with "wilfully" misrepresenting, was to make the accusation he complained of. Mr. Lowe has been understood to mean more than he meant, but this has not occurred "wilfully."

Lord Grosvenor's speech was on behalf of a motion to postpone the Bill until another Bill was added to it for the Re-distribution of seats. The effect of this amendment would be to get rid of the Bill. Now, if lordliness means, as it should mean and does mean, pluck and frankness, a direct negative of the Bill would have fared better in Lord Grosvenor's hands. He had much to say for his course, but he has an uneven voice, often indistinct, and great hesitancy of manner. Yet he went through his work with steadfast courage, and said always what he wanted to say—somehow, and preferred to hesitate to speaking nonsense, which was greatly to his credit.

Lord Stanley, however, made the great speech of the amendment party. His lordship speaks in a jerky, guttural manner, which mars the fine effect of his language. He has what Mr. Bright has well described as "a passionless impartiality." He has the clearest, the most liberal, and the most candid intellect of all the Conservative party. His language has a matchless precision. He wastes no words, and he never lacks the right one. He knows what the question is to which he speaks, and he keeps to it. He never wanders from it, and never confuses it.

The Marquis of Hartington spoke; but a party speech is out of his way. In his own department he has solid qualities, but he has neither the quickness, adroitness, nor fire needed for controversy. He is strongest in the dull fields of official duty. Being a marquis, it was thought a respectable thing to put him up to answer two lords (Grosvenor and Stanley), but he fell into the use of the most awkward expressions, capable of a double meaning. The first meaning was right enough, but the sharp-eyed and quick-witted Opposition always caught at the second, and shouted with laughter, which caused him to adopt other equally ill-chosen terms. But he stood to his guns with coolness, and kept firing away such ammunition as he had, until the last charge was expended. He is a steady gunner, but does not take good sights at the enemy.

General Peel, who has a hearty, heavy kind of wit, made one of his most amusing speeches. His jokes have a rhinocerean gravity. He quoted anything that rhymed, as though it were poetry. Alluding to the Government saying that "honour, morality, and respectability" required the passing of the Bill, he demanded why the Liberal party had not brought it forward six years ago. Where had been their "honour, morality, and respectability" during Lord Palmerston's ministry? These virtues might exclaim with the epitaph—

> "Weep not for us, my masters dear,
> We are not dead, but sleeping here."

The quotation was not deficient in homely humour.

If a man could be benefited by criticism, or made wise by contrariety of opinion, Mr. Bright ought long before this to have attained perfection. No man was ever so constantly discussed as the "hon. member for Birmingham." Every speaker refers to him. The ancient sage was of opinion that men would be kept in the path of virtue, or at least be instructed in the way they should take, could every man see himself in a mirror. To see himself as others see him would aid him materially in forming a correct judgment of his own actions. Mr. Bright certainly has more than this advantage—he not only sees himself in one mirror, he sees himself, or what is declared to be the reflection of himself, in some three hundred mirrors, in the House of Commons; for certainly half the members of that House refer to him, quote from him, call attention to him, remark upon him, criticise him, in every speech they make. Bacon said that if out of every man's mind could be taken all conceits, imaginations, rumours, conjectures, leaving only the residue of actual fact and real knowledge, every mind would be found in a very shrunken state. If out of the debates of the House of Commons Mr. Bright and his opinions, and the criticisms they command, were cancelled, instead of the *Times* being required, the *Pall Mall Gazette* would contain the debates. But whatever differences of opinion may be expressed as to the views and principles of the member for Birmingham, the frankest and most honourable testimony is borne to what Mr. Gladstone lately styled his "extraordinary powers." This is one of the pleasant traits of Parliamentary courtesy in which Mr. Bright himself is not deficient. The extremest opponents who join in contests of supremacy in the House of Commons constantly say the civilest things of each other; and having regard to the lustre Mr. Bright confers on Parliamentary oratory, his greatest opponents will say of him as Peel said of Palmerston on the delivery of his memorable five hours' speech—"We are all proud of him, though we don't like him."

THE LAUNCH OF THE *NORTHUMBERLAND*.

The successful launch of this vessel, representing a dead weight of 9,000 tons, must be regarded as one of the most interesting and instructive experiments in iron ship launching recently made, especially when we take into consideration the nature of the difficulties with which the operation was attended—difficulties so serious that at one time a successful result seemed almost impossible. The object of the preparations made after the first failure was to lighten the vessel partly by the stern; and for this purpose four large camels, or pontoons, were attached by means of strong chains—two on either side of the stern of the vessel—the chains passing under the ship's keel. Each of these camels was fifty feet long, twenty-five feet deep, and twenty feet extreme width. The united lifting power of these four camels was estimated at 2,000 tons. In addition to this power there were the six smaller pontoons previously used, and the other appliances of steam-tugs, hawsers, and capstans. The *Northumberland's* ways also, during the previous week, had been taken up, and re-laid to the extent of about 200 feet at the midship section and bow, and her sliding timbers had been considerably widened, which, it was considered, would keep the ship from hanging should she once start. New foundations and timbers of great strength to support the hydraulic rams were placed under her bows, and the hydraulic pressure was nearly double that used on the previous occasion, being now 1,500 tons. On each side, to work against the bilge logs, were placed two presses, exerting a combined force of 1,000 tons on each side, to start the ship down the ways. A number of hogsheads, also, the united floating power of which equalled 100 tons, were lashed under the bows to aid in lightening her there, and relieve, as far as possible, the pressure to be thrown on the forward part by her being lifted at the stern. On mature consideration it was resolved to dispense with the teams of horses on this occasion, as also with the use of derricks to assist in raising her. As the tide rose towards high-water mark, the shores were all knocked away and the blocks removed. Then the signal was given for the driving out of the dog-shores, and the next moment the giant mass was seen to move. There was no need of hydraulic pressure. The power of the machinery at the bows was not evoked. The ship moved of herself, and, gliding grandly down the ways, floated safely, and without accident to any one on the river.

Things Talked About.

We chronicle, in another column, the reception of Mr. Peabody at Guildhall. Few nobler men have heard the shouts of welcome in that ancient hall. With characteristic modesty, he has declined the invitation to a banquet offered by a large number of the leading bankers and merchants of the City. Mr. Peabody is, essentially, one of those philanthropists who "do good by stealth, and blush to find it fame."

On the subject of trade combinations, a singular story is related by a correspondent of the *Times*. The possibility of introducing machines for brickmaking has often been discussed; and we were prepared for the opposition the operative brickmakers were likely to offer, but not for the extraordinary support they were likely to receive from the members of other trade societies. But, according to the writer mentioned, a company having raised capital for undertaking the making of bricks by machinery, engaged a builder to erect the necessary premises. Then it was found that no bricklayer would lay a brick of the edifice. A wooden erection was then decided on; but builders to whom the contract was offered, were told by the builders' union that, if they undertook the work, the whole of their hands would quit work. It being hopeless to attempt the erection of a brick chimney shaft, an iron cylinder was obtained; but to raise it, shears were necessary. These could not, for some time, be procured, in consequence of the active agency of the unionists. At length, a builder offered to furnish them. He was sent for by the union, and advised to have nothing to do with the work. He took the hint; and neither brick nor wooden building has been erected. The iron cylinder cannot be raised, and the company is idle. Such is the nature of the opposition to the introduction of machinery still to be encountered, and so stoutly is the opposition backed up. But the machinery will come into effect, nevertheless, and the men had best make up their minds to accept the fact.

A novel question was discussed in the Court of Exchequer a few days since—nothing less than the money value of a poor man's wife! We do not mean to say she was actually offered for sale, and that the learned judges were called upon to fix the price. The fact was, she was accidentally killed on the South-Eastern Railway, and the husband, having brought an action against the company, had obtained £200 damages. The company appealed to a full court, and asked for either a reduction of the amount or a new trial. What pecuniary loss has the husband sustained? asked the counsel for the company. Mr. Baron Martin had equally good sense and law on his side when he said, "If a poor man's wife is not of pecuniary value, then I don't know what is." The woman in question was forty-seven years of age, and left four children. No court of law can supply the place of a wife and mother, or even estimate her value; but the Court did all it could, by confirming the verdict of the court below, Baron Martin saying, "It was a mercy to the company to refuse a new trial, as it must result in a substantial loss to them."

The cattle plague is decreasing, and that is good news. The weekly returns show that the number of animals attacked is barely one-fifth of the number five weeks since. So meat at a moderate price may again be looked for.

Notwithstanding Fenianism and other troubles in Ireland, the deposits in joint-stock banks in that country increased in the years 1865 and 1864 by a sum of £2,628,376, and that increase is the largest that has ever been recorded—indeed, twice the amount of 1850, and three times what they were in 1840. There seems to be, then, no lack of money in the sister island, and that confirms what we have recently stated, that industry there is surely and rapidly thriving.

The "blue-book" of the Registrar-General of Victoria, for 1864, has just reached this country. From it we may see how our brothers at the antipodes are progressing. Something else than golden nuggets is building up the Empire of the South. There were 538 manufactories of various kinds in the colony. Our temperance friends will not be pleased to hear that seventy-four brewers were at work, producing annually more than 6,000,000 gallons of beer; but, to counterbalance that, we find that ninety-three mills were at work, converting 2,000,000 bushels of wheat into flour; and the corn crop was reaped by 998 reaping machines. There were more than 9,000,000 of live stock. The extent of the colony is nearly 87,000 square miles, about half as much again as that of England and Wales, and yet the inhabitants did not number more than 626,530; considerably less than that of the county of Kent, and greatly below that of the Tower Hamlets. So there is plenty of room yet for what some writers call the surplus population of the old Anglo-Saxon kingdom.

The Nottingham Dining Hall has been a great success. In the first four weeks it was visited by 24,266 persons, who spent on an average 2¾d. each. Among the articles of food used there have been consumed 1,390 eggs, 7,168 rolls, 910 loaves, 3,130lb. beef and ham, &c. Probably the greatest number of visitors in the middle of the day take the 4½d. dinner, and in the morning and afternoon coffee and an egg.

A circular just issued describes the progress of the Crossley Orphan Home and School, founded in 1864 by Messrs. John, Joseph, and Francis Crossley, of Halifax, who spent nearly £60,000 on the site and building, and endowed the school with an annual income of £3,000. In order to extend the benefits of the institution, benefactions and bequests are received. There are 400 children within the walls, all of whom receive the rudiments of a sound education; and the more promising pupils are specially instructed in Latin, one modern language, algebra, and geometry. "Both boys and girls are so trained as to fit them for fighting the battle of life courageously, and with that kind of self-reliance which is consistent with intelligent dependence on Divine help." The brothers Crossley, blessed with affluence, have used it nobly, and bequeathed to posterity a splendid memorial of the liberality of great employers of labour.

Sir George Grey has stated in the House of Commons that the Government is not prepared with any measure for regulating the employment and education of children employed in agriculture, who certainly stand in as great need of friends in high places as their little brothers and sisters in the factory districts.

The men employed in the carriage and wagon department of the Great Western Railway are following the example of the workmen employed by other companies, and are asking for an increase of wages. The question is daily growing in importance; and there are few demands of the kind with which the public generally would feel greater sympathy.

The successful result of the strike of the tailors employed by Mr. Poole and other tradesmen at the West End, has encouraged the operative tailors of the City, who held a meeting at the City of London Theatre, and pledged themselves to use the utmost exertions to obtain a rise

in the rate of wages. The Edinburgh tailors having struck, some fifty German tailors have arrived from Hamburg, and have signed an agreement pledging themselves to work on the masters' terms.

The strikes at the Consett Ironworks, and at the Newcastle Gasworks, are at an end.

Co-operative Intelligence.

Bacup.—From the report of the Bacup Co-operative Society, it appears that the association consists of 2,457 members, and that during the year 222 have been admitted, while 170 have withdrawn. For the last ten years the society has paid a quarterly dividend of 2s. 4d. in the pound to the members on their purchases. In connection with the store is a library, containing 1,583 volumes. The seventy-fifth quarterly report of the society has just been issued, from which we learn that, during the quarter ending March 28th, the amount received for goods has been £20,356 7s. 2½d., and the net gain on the quarter's transactions, £2,655 15s. 6½d., which enables the directors to declare a dividend of 2s. 5d. in the pound on members' purchases, and to the reserve fund £81 19s. 7d., and leave a surplus of £36 19s. 11d. unappropriated.

Beeside Co-operative Society.—The members of this society recently held their sixth quarterly meeting. The report was read by the secretary, and approved of by the members. The sales for the quarter of twelve weeks had been £1,046 1s. 7d. After devoting £5 15s. to reduce the value of the building, paying interest money, and all working expenses, the balance of profit was £103 15s., giving a dividend of 2s. 2d. in the pound.

Temple Town Industrial Co-operative Society (Limited).—At the eighteenth quarterly meeting of the above society, the secretary read the report, from which it appeared that the society was in a very healthy condition, twenty-six new members having been enrolled during the quarter, and one withdrawn, making the number now on the books 150. The sales for the quarter had been £1,196 15s. 0½d., being an increase of £250 5s. 4½d. on the preceding quarter. After paying all expenses, the amount of profit applicable to dividend was £95, which enabled the committee to pay 2s. in the pound on members' purchases, dividend being paid on all goods except sugar. The members resolved to commence butchering on their own premises as soon as practicable.

Desborough Industrial and Provident Society.—The sixth quarterly balance-sheet shows that the society have done business to the sum of £271 11s. 8d., which, after paying management, interest, depreciation, &c., allowed the committee to declare a dividend of 1s. 7d. in the pound on members' purchases, and 10d. in the pound to non-members, leaving a balance in favour of the society of £1 19s. 6½d. The capital is steadily increasing, and the number of members on the books is fifty-six.

Consett.—At the eleventh quarterly meeting of the Industrial and Provident Society, the quarterly report which was read showed an increase of sales over last quarter of £404 9s. 8½d., and an increase of profits of £38 0s. 8d. Thirty-one new members had joined, and eight had withdrawn during the quarter. The total receipts for goods sold had been £2,602 14s. 9d., and the gross profits, after paying working and other expenses, was £203 5s. 7d., which enabled the committee to declare a dividend of 1s. 11d. in the pound on members' purchases.

Blaydon Co-operative Store.—The quarterly report here showed a balance of £820 17s. 5d. profit on the last three months' operations, which, after allowing £56 15s. 5d. for depreciation of fixed stock and other payments, left £764 2s. to be divided amongst the members, being a dividend of 2s. 2d. in the pound on the purchases.

Moulton.—The fifteenth quarterly report of the Moulton Industrial Society shows the business done to be £1,004 4s. 0½d., being £92 9s. 10¾d. more than the corresponding quarter last year. The net profit gained after paying all management expenses was £97 1s. 8½d., which enabled the committee to pay a dividend of 1s. 11d. in the pound on members' purchases, 6d. to non-members, five per cent. interest on paid-up shares, besides providing liberally for the reserve fund, depreciation of fixed stock, &c.

Seaton Delaval District.—The sixth quarterly report showed that goods to the amount of £123 7s. 5d. have been sold per week, being £19 2s. 10d. above the weekly average of last quarter. After paying interest upon capital, and allowing for fixtures, there was left to be divided on members' purchases the sum of £139 9s. 1d., which gave a dividend of 2s. 2d. in the pound. Forty new members had joined during the quarter, and five had withdrawn, leaving 202 on the books.

Manchester and Salford Equitable Co-operative Society.—We learn from the twenty-seventh quarterly report of this society, that during the quarter there have been 235 new members admitted. The sales in the grocery department, amounting to £12,298, shows an increase of £965 over last quarter, and of £2,580 over the corresponding quarter last year. The sales in the drapery department, amounting to £880, are not so large as last quarter. This may be accounted for, in some measure, with last quarter being Christmas quarter, always one of the best in the year. The sales are, nevertheless, £240 more than the corresponding quarter last year. The net profits amount to £872 17s. 9d., which were to be disposed of as follows:—For depreciation of building and fixed stock account, £63 16s.; non-members' purchases, £93 17s. 6d.; educational purposes, £21 9s.; Royal Infirmary, £5 5s.: a dividend of 1s. 6d. in the pound being paid on members' purchases. In the educational department, to make the society increasingly popular, and with a view of benefiting the members, a course of three lectures on scientific and literary subjects has been delivered in the Large Hall, Downing Street; and, in order to induce a large attendance at each of them, a mere nominal charge was made for admission. A Mutual Improvement Association has been established, which meets every Tuesday evening, at half-past seven, at the Central Store. The meetings are devoted alternately to discussions, readings, conversation, recitations, &c.; and the members and their friends are earnestly invited to attend. The library, consisting of upwards of 1,000 volumes, is now open every evening during the week, from seven to nine o'clock, and this arrangement will, it is hoped, better meet the wants of the members.

General Information.

CLUBS AND INSTITUTES.

All Souls (St. Marylebone) Club.—The members of this club, in conjunction with those of the St. James's and Soho, with the view of carrying out the objects of district organisation, recently held an animated discussion at the rooms of the above club, on "Working Men's Clubs" generally. The chair was taken by Mr. J. W. Marshall, secretary to the All Souls. Several of the speakers, in discussing the question of the admission of youths into the clubs, stated as their opinion that no members should be admitted unless they are at least twenty-one years of age; and the arguments used and instances recited of clubs having failed in consequence of the admission of young members, went far to prove that the *lowest* age to which members should be admitted to Working *Men's* Clubs should be fixed at twenty-one, while other speakers concluded that the principal aim of the clubs should be to reclaim the younger members from the influences of the public-house, and that eighteen was a proper limit to the age of members. Other subjects in connection with Working Men's Clubs were discussed—viz., the introduction of beer into the clubs, and the necessity of district and central organisation, the generality of the speakers being in favour of them. The meeting was finally adjourned to Wednesday evening, 18th April, at half-past eight o'clock.

Working Men's Club and Institute, Crewe.—An interesting and important meeting was held recently at this great railway centre, in the Town Hall, to establish a Working Men's Club and Institute, for the use of the large body of men employed in the company's locomotive works at Crewe. The hall, which was granted for the evening by the company, was quite full. The chair was taken by J. Webb, Esq., C.E., one of the principal managers of the works, and Mr. Potter, one of the foremen, then explained what had been done hitherto in the matter. The chairman then introduced the Rev. H. Solly (to whom the managers had given a free pass for his journey), who entered fully into a description of the objects and uses of a Working Men's Club, earnestly inviting the men to have one of their own, similar to those that have been found so useful elsewhere. Mr. Fisher and other working men having advocated its establishment, Mr. Winstanley, hon. secretary of the Crewe Mechanics' Institution, cordially urged the value of such an institution, which, he said, would occupy different ground from the one of which he was the official representative, and would at the same time ultimately promote its prosperity. They had an excellent attendance at their classes, and above 400 members, but many of these were not artisans; and even if they were, what were 400 out of 5,000, the number of fitters and labourers actually employed by the company? A working man in the body of the meeting said he had come prejudiced against the movement. He had a comfortable home himself, and wished everybody else had, and he feared the club was against the home. But, from what he had heard that night, he saw he was wrong, and he should warmly support the effort to establish the club. The meeting, which grew quite enthusiastic towards the close, terminated by hearty votes of thanks to Mr. Solly and the chairman.

Social Meeting, Exeter Hall.—The first of the series of social meetings, under the auspices of the Council of the Institute Union, was held on Wednesday evening, April 18th, in the Lower Hall, Exeter Hall. The Earl of Lichfield, who occupied the chair, said the subject for discussion that evening was, "How far are the disadvantages under which the working classes labour attributable to causes within or beyond their own control?" An immense improvement had taken place in the condition of the working classes during the last half century. But there was yet much—too much—to be done. He believed it was for the working classes to do most of that which remained to be done for themselves; yet he always felt a deep satisfaction, whenever he attended a meeting of the working classes, at the readiness with which they accepted any proposition on the part of others to help them with the work they had in hand. He therefore thought that those who, like himself, had worldly advantages with which the working class were not blessed, could not better occupy their time than in assisting, as far as they could, to elevate the condition of those below them. It was for that reason he was present. He did not pretend to say he was in a position to give them much advice, but he attended to hear what those who represented the working classes had to say on the subject for discussion. Mr. John Bainbridge, a working man, then read a paper on the question for discussion. Mr. Layard, M.P., briefly addressed the meeting. He had attended some of the meetings of the club last year, and derived great instruction from the discussions which took place, and which were carried on with calmness, good sense, and moderation. Several working men took part in the discussion, and hearty votes of thanks, moved by Mr. Solly and Mr. Hodgson Pratt, to Mr. Bainbridge and the noble chairman, closed the proceedings.

Working Men's Club and Institute Union.—The Council beg to give notice to the Committees and Secretaries of the Metropolitan Working Men's Clubs and Institutes, that they propose forming a District Union of all these societies within the postal district, on the plan found advantageous in the provinces, with a view of promoting friendly co-operation between them, and mutual benefit. It is therefore earnestly requested that the committee of each club desirous of joining the District Union, should they approve of its constitution and plans, will send a delegate to their office on Thursday evening, April 26th, to confer on the subject, and to make such arrangements as may seem to them desirable. Three members of the Council of the Parent society have been appointed to meet the delegates on the occasion. Among other benefits which it is hoped may arise from the proposed union, and which may be discussed at the forthcoming meeting, are an interchange of free admissions to the London clubs, so that members of one club, if visiting or working in the neighbourhood of another, may have a welcome in the latter for a few evenings without payment. Also a system by which courses of lectures and exhibitions of dissolving-views, of pictures, wood carvings, &c., might be organised to take place at various clubs on successive nights or weeks. Also, an interchange of friendly visits, either simply for good fellowship or for discussion; also matches of chess, draughts, or bagatelle, &c. Also, arrangements for joint excursions in summer, and conversazioni, classes, &c., in winter. These and various other advantages are anticipated from judicious organisation, and the Committees of the London Clubs are requested to give their representatives any general instructions regarding them, or any other suggestions that may seem advisable. No interference, of course, in the management or arrangements of individual clubs is in the slightest degree contemplated. As some of the metropolitan clubs, recently formed, may not have yet sent their names and addresses to the office of the Union, their managers are now invited to do so, in order that information may be sent to all alike as to the plans and advantages of the proposed District Union. A. H. Layard, Esq., M.P., is expected to preside. Tea on table at 7 p.m. The conference to commence at 7.30 p.m.—Henry Solly, *Organising Director.*

WAGES AND STRIKES.

The advance of wages movement is gradually extending to all parts of the kingdom, the men, in most cases, obtaining the required advance, and, in some instances, a reduction of hours of labour also. In a few cases, the employers have anticipated the demands of the men, as at Ashton-under-Lyne, where Mr. Hugh Mason has notified to the whole of the hands employed by him that their wages would be advanced ten per cent. Notices to a similar effect were also issued by the Co-operative Spinning Company. On the 19th inst., a numerously-attended meeting of the members of the London Master Builders' Association was held at the Freemasons' Tavern, to take into consideration the resolution of the delegates of the men, passed on the previous evening, respecting the advance of wages to 8d. per hour. After an hour and a half's discussion, the following resolution was adopted:—"That an advance of one halfpenny per hour be given to the most skilled mechanics; the less skilled to be at liberty to accept a less rate. The hours of labour to be nine per day, from the 9th of November to the 24th of February, and ten for the remainder of the year. The labourers to be advanced one farthing per hour on the same conditions. The advance to commence on the 5th of May next." This resolution is almost in the same terms as that adopted by the delegates, with the exception of the distinction drawn between the "most skilled" and "less skilled" mechanics; and it is possible that some hitch may arise upon this point to prevent so speedy a settlement of the question as is desirable. This point arranged satisfactorily, the question will be settled. The delegates meet again this week, to decide as to the acceptance of the above resolution, and the only difficulty likely to arise is the vagueness of the second sentence in the resolution.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE CULTURE OF WINDOW PLANTS.

To the Editor of the Working Man.

Sir,—I am very glad to find that you are about to give us some papers on window gardening, as it is a subject which I know to be very popular with the working classes, and one which is calculated to do much good by fostering a love of the beautiful. I had the management of a show of window plants in the east of London last year, which proved very successful. We had handbills printed, stating the particulars of the proposed show, with the rules as to the competition for the prizes. We also gave away about £5 in money prizes, which I think the people like better than any others. We did all we could, by means of the bills, to make the show known in the parish, and we found the people, for the most part, eager to share in it. The rules should be as few and simple as possible—just stating who may compete for the prizes, that the plants will have to be duly registered within a given time, and that they must remain in the parish, and under the care of the registered exhibitor until the time of the show. We held the show in July, and Lord Lyttelton came down to give the prizes, and made a speech, in the course of which he expressed his pleasure and satisfaction at what he had seen. We kept the show open for three days, and it was visited by a great many persons. We gave free admission to exhibitors and their wives; to others we made a small charge, the proceeds going towards the prize fund. In conclusion, I would say that what is chiefly wanting in order to make the show successful is perseverance and patience.—I am, Sir,

An Hon. Secretary.

THE INCREASE IN THE RATE OF WAGES.

To the Editor of the Working Man.

Sir,—In your notice of the London tailors' strike and lock-out, you ask working men for their views as to the possibility of the present general rise in wages being permanent. I feel sure the present rate of wages will be permanently maintained as a whole, for the following reasons:—First, the leaders of opinion among working men see, that owing to the immense amount of gold which has been brought from the bowels of the earth since the commencement of the mining operations in California, Australia, New Zealand, and British Columbia, the value of the precious metals has depreciated, and money has decreased in value; or, in other words, everything that money purchases in the market has risen in price through it, so that the working classes of England, as far as the law of supply and demand is operative in this case, are really worse off for it, for the amount of gold their labour is worth now purchases them less of the necessaries of life, and the present general rise of wages is only the labour, among other marketable commodities, going up relatively as gold comes down. Some one may here interpose, and say that this, that, or the other thing is not dearer now than heretofore. If so, I reply, the causes mentioned have prevented it becoming as much cheaper as it otherwise would have done, owing to free trade, unshackled commerce, and the invention and application of machinery.

In the second place, becoming more acquainted with the laws of supply and demand, the operative classes, rather than stand a lowering of the present rate of wages, would act upon the supply of labour by raising funds for emigration; and while the great republic of the West keeps in operation the "Homestead Act," offering to emigrants the splendid inducement of eighty acres of good land; and, owing to the operation of the laws of entail and primogeniture, the persevering artisan of England is practically prevented from acquiring possession of eighty feet of the soil of "Mother England," hundreds of thousands would be willing to try their fortunes in what now promises literally to be "the home of the free."

In the third place, as co-operation becomes more thoroughly understood and appreciated by the working classes, they who now strike to rise, and would strike again to sustain the present rate of wages, will see that their wisest policy lies in forming among themselves co-operative societies, limited liability companies, &c., and by working their capital as merchants, tradesmen, manufacturers, builders, contractors, &c. Taking the fruits of their industry into the markets, not only of England but of the world, they will rightly ascertain for themselves, free from the combinations of mere capitalists, the actual worth of their labour. And believing, as I do, that the reason why the Englishman gets more wages is because he does more work, of head and of hand, than those who get less wages around him, I have no fear of the results of the trial. I believe wages will increase and the time worked decrease, till things find their proper level.

I am, Sir, yours, &c., G. E. M.

THE EDUCATIONAL FRANCHISE.

To the Editor of the Working Man.

Sir,—One of your correspondents says the remarks respecting the "Whitechurch Working Man's Club" are damaging to the cause of Reform, because they say Mr. Clay's Educational Franchise Bill would not be complete without the ballot. I contend they are right: by the present system a man cannot, as a rule, *conveniently* vote conscientiously. He is obliged to vote for or with his landlord, or accept the consequences (look at the recent eviction of tenants by the Marquis of Bath, for instance); or else his cupidity and covetousness are tempted and satisfied by bribery, and so he is induced to sell his conscience and his interest in his country's welfare. Your correspondent says such a man is not fit to be entrusted with a vote. Well, suppose we admit that; if the rule is a good one, it will work two ways, and we shall agree that the man who first proposes these abuses and breaks the laws must be the worse of the two, and not at all qualified to be a law-maker. If it is not illegal to force a man to give up the keeping of his conscience to another, it is illegal to bribe; and how many of our M.P.'s could with truth say they have not directly or indirectly been guilty of it, not to mention the sickening deceit and dissimulation practised by many of them just before an election, by the sudden interest they affect to feel for their constituents and their families? Then, again, just look at the last election—what a fearful amount of drunkenness and rioting throughout the land; murders committed, outrages of every description, and a senseless destruction of property; and all this is inseparable from the present system.

I can scarcely believe any moral man (leaving his religion out of the question) could advocate such a state of things in preference to managing it in a quiet, orderly, systematic way; which would be the case, I am quite sure, if the voters were protected by the ballot; and I am sure we should gain immensely by the change, because the candidates for Parliamentary honours would then have to stand on their merits, and not on their monetary influence. I have been told by a person who has resided for many years in Australia that the ballot answers extremely well there; and if the colonies are allowed the privilege, and gentlemen who are Members of Parliament have adopted it at their clubs, I am quite sure there can be no good reason for withholding it from the electors of England.—I am, Sir, yours respectfully,

Chas. Galton,
A Member of the W. W. M. Club.

To the Editor of the Working Man.

Sir,—In answer to your invitation to working men to give their opinions on Mr. Clay's Bill, I, as a working man, wish just to state my views on that Bill. I think Mr. Clay's Bill is far better than the Government Bill, for it would give the franchise to all who are worthy of that privilege. It is easy of attainment; and that man who would not exert himself to obtain that knowledge which would give him the franchise, on Mr. Clay's principle, is not worthy of holding so sacred a trust. It would be within the reach of all, and such a Bill we want; nothing short of that will satisfy the country for any length of time. But, sir, I am sorry to see the opinions that prevail amongst many of those of the working class who write to the Working Man respecting the franchise. Some would have a test of one kind, some a test of another; but I think, in general, they who would throw various obstacles in the path of others are men who are already beyond those obstacles. Some would establish a kind of Inquisition, respecting whether they attended any place of worship, and what place, and so on. One of your correspondents in No. 14, who is a schoolmaster, would admit all schoolmasters who have obtained a Government certificate or diploma, &c., or all who had insured their lives for £100, or bought an annuity of £20 per year, and paid three years' premium in either case, or have not less than £50 invested—very good for those who have been so fortunate as to be in a position to accept those tests. I suppose the writer "S." is in that position, or he would not have written in the strain he did respecting those who have not been so fortunate. He thinks they who possess property, as a class, are more intelligent than those who do not possess it, and, even if ignorant, their having property proves their power of self-denial. I think it proves nothing of the kind. As regards intelligence, there are thousands of intelligent working men, who have to struggle hard to gain a scanty livelihood for their wives and families, who did not marry in their teens, as "S." sneeringly insinuated, but have prudently and manfully battled with all the difficulties and troubles of a large family, or sickness, or death, and want of employment at times, and many other things which beset the path of the working man, who cannot be surpassed for general intelligence, in a political point of view, by many of our certified schoolmasters, and I might say M.P.'s as well.

The property test is no test at all, as thousands of persons at the present time hold property which entitles them to a vote; but as regards the machinery by which the country is governed, they know no more about it than the aborigines of Australia: they inquire or read a little about the corn and potato markets, and that is the extent of public business they are acquainted with. I admit, sir, that there are great numbers among the working class who are in a state of ignorance, but I attribute that more to the temptations placed in their way than anything else; and I think the working classes have given their opponents a strong proof that, if they had the power, they would remove those temptations out of their way, which blind and keep in ignorance so many of our fellow men—I mean those dens of infamy, the drink shops. That, sir, is one reason why I think the franchise ought to be extended to all on the principle of Mr. Clay's Bill. It is a sorry spectacle to see the working man, who, having enjoyed good wages and gained the privilege, or the man who has obtained a good education, saying to those beneath as regards property or education, "Stay where thou art, or make thy path through the same purgatory whence I have come." Excuse me, Sir, for trespassing thus on your space.

Goole, April 9, 1866. S. G. Larner.

WORKING MEN'S CLUBS.

To the Editor of the Working Man.

Sir,—I have read the Rev. Mr. Solly's paper on "Working Men's Clubs" in your valuable journal of this week, and, I regret to say, can confirm from personal experience the truth of his remarks; in fact, he not only does not exaggerate the evil, but scarcely estimates it sufficiently, if I am to judge by some of the remedies he proposes.

At the club to which I have the pleasure of belonging, we admit members at eighteen years of age—in my opinion, three years too young. The conduct of these youths has been extremely bad, and we have done nothing at present to remedy it.

Mr. Solly says that, when we cannot provide separate rooms, we may safely admit them to the reading-room and library. I say, not safely; for that is where I find them very troublesome—annoying other members with loud talking, laughing, and often practical joking; and at concerts and entertainments, when they are nearly all together, they will persist in being noisy, and are worse than impertinent if interfered with. Such conduct will be fatal to the best-managed club.

With regard to the proposition for admitting youths as associates, I consider the recommendation to be founded on quite an unsound basis—in fact, it would be quite as bad as making them full members. It is nothing but the same thing in another form; and nothing short of separate accommodation will be of any use. Our club is at present in a prosperous state; and my only fear is that we may eventually suffer from this evil, of which we have already had complaints.—I remain, yours truly, D. H.

April 16th, 1866.

THE YORKSHIRE MINERS.

To the Editor of the Working Man.

Sir,—In the report given in No. 14 of the Working Man respecting a mass meeting held by the West Yorkshire miners, there are some slight mistakes. Their union has not benefited them 10s. per week, but 4s. 6d. per week; they are trying to get 5s. for eight hours, and not for seven hours, as stated; they are endeavouring to reduce their work to five days per week, because two-thirds of the West Yorkshire mines are thin mines, varying from two feet to thirty inches thick, giving off large quantities of gas, and the miners think five days sufficiently long to be cooped up in such places.—Yours respectfully,

J. Dixon,
Secretary to the Miners' Association.

TO CORRESPONDENTS.

W. Clarke.—The subject treated in your letter does not come within our range of topics.

Planet (Staleybridge).—We could not undertake the responsibility of choosing a society for you. The articles were published with the purpose of enabling working men to make their own selection.

Mechanic.—Operatives are not disqualified as such from attending the Central School of Art at South Kensington. The principal qualifications consist of a certain amount of proficiency in drawing, and proofs that the art-knowledge sought to be acquired is intended for industrial purposes.

Inventor.—It is a difficult question to decide, merely upon *ex parte* evidence; but a somewhat similar case recently occurred at Dudley, in which a collier sought to recover damages from his employer for illegal dismissal from work. The facts deposed to were simply that the plaintiff, in February last, declined to "hang on," because the shaft was not safe, and defendant, therefore, told him to go. It was clearly proved that the shaft was not safe, and that during the last part of plaintiff's working there a brick had fallen, which might have seriously injured the man. The judge considered it most important that it should be known that men were not compelled to work when and where it was dangerous, and that masters must take all proper and available means to protect the lives of their men. This was a clear case. The plaintiff refused to work because the shaft was not safe, and he was quite justified in so doing. The verdict would be for £2, as plaintiff admitted he could have got work under the fortnight had he chosen to do so, and he had no right to accumulate damages.

John Samuel.—No such Bill was ever passed. There is a Statute of Limitations, which debars the recovery of debts after they have been incurred six years, and nothing has been paid on account, and no acknowledgment of the debt paid.

Perseverance.—You require an impossibility: we must refer you to a treatise on type-founding, which you may find in any large Cyclopædia.

C. W. Y.—1. The value is not more than half-a-crown.
2. Both sons can take up their freedom.

J. W. Sedley.—Apply for the money due, and, if it is not paid, sue the debtor in the County Court.

J. D.—There is no such work published at present.

E. D.—The vessel for holding the sulphuric acid in which the gas is generated, and such parts as are exposed to its action, must be constructed of lead or glass.

A Contributor.—We have not seen any of the portable clay ovens you inquire about.

Eccles, B.—The safety gun-paper is proposed by the inventor, Mr. G. S. Melland, as a substitute for gunpowder and gun-cotton. It consists of paper impregnated with the following mixture:—Chlorate of potassa, 9; nitrate of potassa, 4½; prussiate of potassa, 3½; powdered charcoal, 3½; starch, $\frac{1}{16}$; chromate of potassa, $\frac{1}{16}$; water, 78 parts—all by weight. These ingredients are mixed together and boiled for an hour. The solution is then ready for use; and the sheets of paper are passed through it, rolled, and dried at 212°.

Asroria.—The aneroid barometer was invented by M. Vidi, a French mechanician. It has lately been much improved by M. Breguet. Compared with the ordinary mercurial barometer, its indications are found to be thoroughly reliable.

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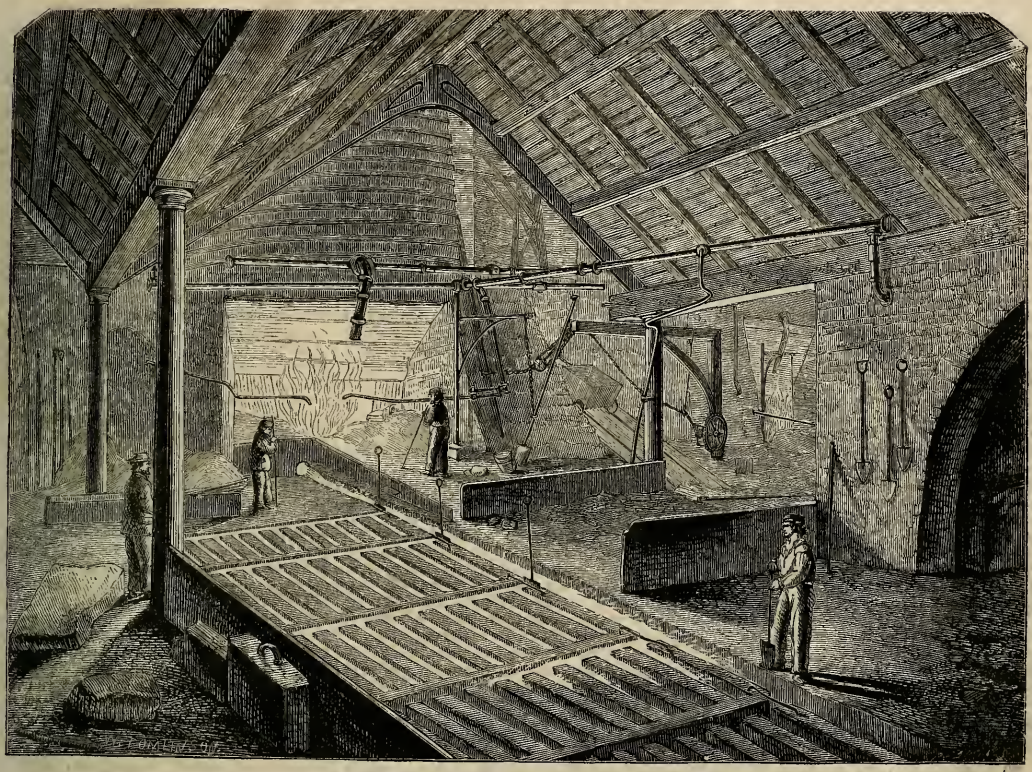
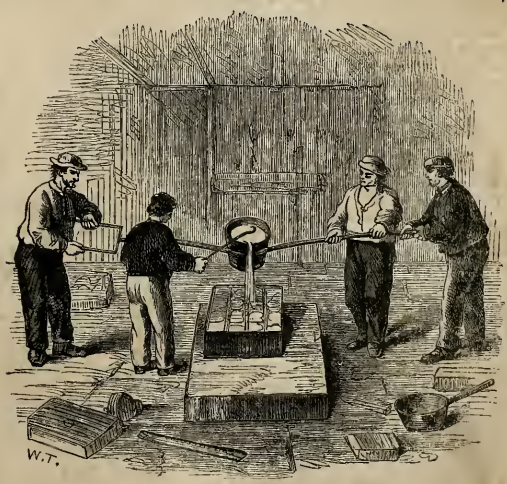
THE DUDLEY IRON WORKS.



INTERIOR OF THE CASTING-HOUSE, WITH LOWER PORTION OF BLAST-FURNACE.

CARRYING ORE TO THE FURNACE-TOP.



CASTING SMALL ARTICLES.

Earl Dudley's Blast-Furnaces, Coneygree, Staffordshire.

The smelting of iron was, until a comparatively recent period, performed exclusively with charcoal as fuel; but so great were the quantities consumed by the furnaces, that in course of time the manufacture began rapidly to decrease, in consequence of the difficulty experienced in obtaining an adequate supply of wood. This caused many persons to turn their attention to the use of pit-coal as a substitute, and in the fifth year of the reign of William and Mary (1694), we find a charter granted to various persons forming a company, who set forth "that they with great study, care, and expence, had brought to practice the use of pit-coal to melt or smelt down all sorts of iron oar, iron stones, slaggs, cinders, and broken, cast, or hammered iron, and to make the same into good merchantable barr iron and other iron," &c. &c. Previous to this, James I. granted patents for the use of pit-coal, but apparently with little result; and the general substitution of this fuel in the place of charcoal was an affair involving a long series of years, much patient labour and perseverance, and numerous failures.

About the year 1730, certain persons created considerable excitement by very loudly-vaunted pretensions to "great and wonderful skill in making iron with ore and pit-coal." They were either arrant quacks, who had obtained a smattering of knowledge concerning such things, or most enthusiastic believers in the ultimate triumph of the new process, for they appealed with the greatest confidence to the public for subscriptions to the trifling amount of a "million of money, to enable these great projectors to make iron sufficient to supply the whole nation, without the use of wood or charcoal."

They obtained some thousands, and for about two years professed to be engaged in successful preliminary operations at Frizington, near Whitehaven, in Cumberland; but having (as they state in a rather bombastic "notice to all lovers of art and ingenuity") "met with none but infidels in that barren part of the kingdom, are lately come to London, and are now getting ready to convince the world," with a view to raising the aforesaid million.

These persons were derided, denounced as impostors, and the successful employment of pit-coal treated with great incredulity; but the necessity for more vigorous efforts towards the providing an efficient fuel in the stead of charcoal soon became obvious to all. So scarce did wood become, that in most counties throughout the country it was forbidden to be cut down for these purposes, and the consequence was the extinction of most of the furnaces. By the year 1740, so severely had the manufacture suffered, that the quantity of iron produced had decreased from 180,000 tons yearly to the insignificant amount of 17,350 tons—of which the county of Stafford, having two furnaces, produced 1,000 tons. Gloucestershire headed the list in that year with 2,850 tons, the product of six furnaces.

From this time pit-coal gradually came into use; the numerous difficulties attending its operation being overcome by various improvements in the construction and height of the blast-furnace, and notably by the eventual production of a blast combining the requisite qualifications of intense strength and steadiness, by the use of steam power. Such is the present blast-furnace.

We have given three illustrations from the works of Earl Dudley at Coneygree, in Staffordshire, near to the town of Dudley.

The modern blast-furnace is a tall, somewhat tapering, cylindrical structure, built externally of brick, and banded at frequent intervals with iron, to strengthen its powers of resistance to the effects of intense heat. Inside it is lined with fire-brick. The height of those we examined was about seventy feet. The front has two openings, through one of which flows at proper intervals the liquid metal, and through the other the "slag" or refuse matter. There are also other openings at the lower part, at each side, and at the back, through which the tuyeres, or pipes carrying the blast, are passed. Each furnace at Coneygree has six tuyeres, and there are smaller pipes carrying water round their extremities, to keep them cool.

The iron ore is procured in great part from the surrounding districts, and brought to the works by canal boat; landed, stacked in large heaps or banks, and calcined previous to being smelted. The furnace is fed at the top, which is reached by a long incline and tramway from a distant part of the works near the landing wharf, as shown in the accompanying engraving. The ore is placed in barrows, whilst others are laden separately with limestone and coal; these are wheeled upon a flat wagon, which is then drawn up the incline by a strong iron chain connected with the steam machinery; and upon arriving at the furnace-top, round which runs a platform, the contents are emptied into the furnace, through openings, in the following order: first coal, then ore, and, lastly, limestone, which is used as a flux. This feeding process goes on without intermission, and the fires are only extinguished when the furnace needs repairs, &c. The materials take about four "turns" in their passage through the furnace—that is, the feeding of to-day would come out in a fused state at the bottom about four days hence. As they gradually descend, the earthy portions of the iron ores combine with the limestone, and form "slag," which, being lighter, rests upon the surface of the liquid metal at the bottom of the furnace, in the "hearth," as it is called. About 150 tons of iron per week are passed through each furnace, and the liquid metal is generally allowed to flow out at the bottom about every twelve hours.

Descending into the casting-house, we take our stand under the roof in front of the furnace, for the purpose of seeing how "pigs" are cast. As we gaze around, the place—orderly enough to the initiated—looks like a sandy wilderness, with an apparently confused jumble of great cranes, masses of iron, pipes running about in all directions, shovels, iron bars, pokers in great variety, &c. &c. It is just previous to casting time, and the fire is roaring and rushing out at the bottom of the furnace with a deafening noise, loud as thunder. The liquid slag flows out from time to time at an opening level with the mass of molten metal, runs down a gutter of its own to a little hollow, where it cools, solidifies, and is then placed upon an iron wagon running up a tramway between the furnaces, and carried to a huge "cinder-bank" a little distance away. All over the floor of the casting-house sand lies to the depth or eight or ten inches. This is now shovelled aside, and beams of wood of the length and shape of the intended "pigs" are laid gridiron fashion upon the floor, in number proportioned to the expected extent of the casting. The sand is next shovelled between all these pieces of wood, pressed in quite hard, and the beams then taken out, thus leaving a series of gutters, or moulds, as shown in the engraving.

A long, principal gutter is formed in the sand from the furnace to the moulds, and the sides of this are carefully smoothed and patted close with a spade, whilst the bottom is made close and even with a wooden instrument resembling a crutch. A man takes his station by the side of the main gutter with a spade in his hand—for a purpose presently to be noted—and all is ready. One of the workmen near the furnace pokes away the sand, &c., from the mouth or hole from which the metal is to issue, until a round, red spot is seen; then an iron bar has its end vigorously driven into the spot, the mouth is opened, and presently out pours the molten metal, glistering, throwing out myriads of fiery sparks, and looking in the daylight exactly like a stream of liquid gold. Away it flows down the furrow to the first row of moulds, which it immediately fills; and the man with the spade now steps forward and sticks his implement across the entrance gutter, to prevent the admission of any more metal to that series. It now flows to the next row, which it fills, and so on, until the whole of the moulds are filled, or there is no more metal forthcoming. This is the pig-iron of commerce.

Our illustration of casting small articles from a ladle, shows one of the operations carried on in another part of the same works; but the iron used does not come direct from the blast-furnace. It has to be re-melted in another furnace previous to being used for such purposes.

Nowhere can iron smelting be seen to greater perfection than in Staffordshire; and at the works of Earl Dudley neither trouble nor expense is spared to ensure perfection.

We have stated that the entire produce of Staffordshire in 1740 was only 1,000 tons. In little more than a century (in 1854) that amount had increased to the enormous aggregate of 847,600.

Getting Married.

"Thinking of getting married, is he, Nelly? Just about the best thing he could think of, supposing he has got the right sort of girl. I hope, though, she will never forget to put the sugar in his tea, through getting excited about her neighbours' doings, and forgetting her husband, like some people I know."

"Beg your pardon, Tom, I'm sure; there's the sugar, and would you like a little more milk, dear? But he is not only thinking about it, but the banns are put up, and the wedding is to come off in a fortnight. And they want our Polly to be one of the bridesmaids, and, if she is, she must have a new bonnet, Tom; so, you see, it concerns you and me, too, after all. Don't you think she is a very pretty girl, and a good one, too—eh, Tom?"

"Our Polly? Of course I do."

"No; I don't mean her, Tom; how stupid you are! I mean Lizzie Wilkins, the girl Charley Crowther is going to marry."

"Yes, Nelly, I think she is a good one; I hope and trust she is. For getting married is a serious thing; and if a man makes a mistake about it, it's pretty nearly ruin to him, body and soul, that's a fact. Bad enough it is with rich folks; but for a working man who means well, and hopes to do his duty in the world, a mistake in that matter is terrible indeed. Always is 'a virtuous woman a crown to her husband;' but never, it seems to me, so bright and so beautiful as when she shares with him the hard task of making the best of matters that require a good deal of making the best of. A working man's home must always be a poor home; but it may be the most pleasant place on the face of the earth to the two people who agree to share it. It is not a store of money that makes folks happy; and when a young woman, who knows how her own father and mother have sometimes been pinched to keep a comfortable home over their heads, and bring up their sons and daughters as good boys and girls should be brought up—how carking care will come, how sorrow sits at the threshold of every man's house; how evil days threaten, guard against them as we may—the young woman, I say, who, knowing all this, gives herself to a man to be his helpmeet, to walk with him, hand-in-hand, through the paths of life till death do them part, and who, with simple faith in his manly truth, looking to him as the breadwinner whose industry will carve out a future for them both, the protector whose strong arm clasps her to his heart and holds her there—resolves to be to him a wife indeed, the tenderer half of their united being—there is a girl worth a man's winning and wearing."

"I don't know how it is, Tom, but you always seem to see a deeper meaning in common things than I do, or than anybody else that I know does. I have sometimes thought that you spend more time than you ought to do over those books of yours; not that you ever neglect anything else for them, I don't mean that; but it seems as if they made you too clever for a man in your position. But you are right, Tom; and I feel that you are, for you seem to be able to put into words what I often think of in a dreaming sort of way, but cannot quite get into shape, and what the people we meet with seem to have very little idea of. Now, Mrs. Wilkins, Lizzie's mother, you know, looked in this afternoon, and so did two or three others, and they were all talking about the wedding; and they all said that it was a good match, for Charley is earning at least two pounds a week, and has something laid by, and Lizzie is careful, and good at housework and needlework, and they did not see why he should not be a foreman some day, and then Lizzie would be able to hold up her head as high as any of them. They have taken the house—it has four rooms and a kitchen—and furnished it, with a Kidderminster carpet in the front parlour, and six horsehair chairs and a couch, with an anti-macassar, and 'Red Riding Hood' in a frame, and a glass, which cost two pound ten at a sale, on the mantelpiece. And there's an iron Arabian bedstead, and four bedroom chairs at four and sixpence each, and a marble top wash-stand and a chest of drawers, picked up cheap, but never made under four guineas—and everything comfortable; and the kitchen's quite a picture. So you see, Tom, Mrs. Wilkins and Lizzie herself are all in high feather, and looking forward to the housekeep-

ing. But they were in a great trouble about one or two little matters. One was Lizzie's bonnet; and next, what would be the most genteel thing to have for dinner on the wedding-day. Mr. Wilkins, Lizzie's father, says he is for a good old-fashioned leg of pork, and just an apple pudding after; but Mrs. Wilkins says she does not think a goose would be out of the way on such an occasion. And then, Tom, they can't make up their minds about the cabs to church. Young Harry Wilkins, Lizzie's brother, says the bride and bridegroom ought to ride together in a Hansom; while Mrs. Wilkins thinks the neighbours might say it was proud of them, and it might make words afterwards. But, Tom, these seem to me to be very little troubles, and you make me think still less of them. You and I walked very quietly to church; and Tom, dear, though we have been together for seventeen years, I would marry you to-morrow if we had the chance again."

"Would you, indeed, Nelly? I suppose I must take that as a compliment. And I sincerely hope—and I don't fear that I shall be disappointed—that in seventeen years' time Lizzie will be able to say the same to Charley. The young couple have a fair start; and whether they go to church afoot or in a cab, whether cane-bottomed chairs and white dimity adorn the new home, or horsehair and polished mahogany, will not much affect their future happiness if, in furnishing their house, they have not failed to provide two good, loving, courageous hearts, which will overcome a thousand little troubles; cheerfulness, good temper, mutual trust, and that calm, deep-seated love which makes them sweethearts all their lives, and gives a deeper meaning to the best of all titles—father and mother. So, I will be among the first to shake hands with the happy couple; and you, Nelly, shall give Lizzie a kiss for me, and tell her how I welcome her to the honourable estate of wife."

*How the Rate of Wages may be Raised.**

BY ARTHUR HOUSTON, M.A.,

Whately Professor of Political Economy in the University of Dublin.

Supposing the demand for labour to be increased in the way mentioned in our last article—namely, by an augmentation of the capital of the country—whether the value of labour will rise depends on whether the supply is or is not increased in a like proportion. It would be to no purpose, as far as the value of labour is concerned, to double the capital if at the same time the number of labourers, or the duration of their labour, or the amount of exertion they put forth in a given time, were doubled also. In such a case the value of labour would remain unaltered.

And here it is proper to notice a distinction which is of importance to the right understanding of this subject—that, namely, which exists between the *Rate of Wages* and the *Value of Labour:* the latter being the amount of money—or, more properly speaking, goods—which the workman receives in return for a certain amount of exertion, whatever be the time he takes to put forth that amount of exertion; the former being the amount which he receives in return for the exertion he puts forth in a given time, whatever be the amount of exertion which in that time he puts forth. Thus, the labour of a lazy man, or a weak man, may be dear at fifteen shillings a week; while, in the same employment, that of a strong and active man may be cheap at thirty. The wages of the former are low compared with those of the latter, but the value of his labour, on the contrary, is high.

It is necessary to bear this distinction in mind, because the effect on the condition of the working classes produced by an alteration in the supply of labour is different according as it is brought about by an alteration in one rather than another of the three elements of which that supply consists. If the number of labourers be altered—the demand for labour being supposed to remain unchanged—*both* the value of labour and the *rate of wages* would be altered; but if either the duration of the period of labour or the amount of exertion put forth in a given time be altered, the value of labour alone will undergo any change, while the rate of wages will remain unaffected. To take an example: Suppose the amount of capital in a country appropriated to the payment of wages to be £20,000,000, the number of labourers to be 1,000,000, and the number of hours' labour per day to be 10. Under these circumstances, the average wages earned by a man in the period during which on the average the capital was turned, would be £20. Now, suppose that, by emigration, for instance, the number of labourers were reduced by one-half, while the number of hours' labour per day, and the amount of exertion put forth in that time, remained as before. It is plain that only one-half the previous amount of work would be done; and, since as much capital would be spent in wages as ever, it follows that each labourer would receive twice as much wages as formerly, without doing any more work; so that the rate of wages and the value of labour would be doubled simultaneously. But suppose, on the other hand, that the hours of labour, or the amount of exertion put forth in a given time, were reduced one-half, while all the other circumstances originally mentioned remained unchanged; here the amount of work done would be diminished one-half, and as the £20,000,000 would still continue to be paid for it, the value of labour would be doubled; but inasmuch as the number of persons among whom this sum was divided would still be 1,000,000, the rate of their wages would remain unchanged. They would not receive more, but they would work less.

Such would be the effects of a decrease in the supply of labour, unaccompanied by a corresponding decrease in the demand for it—that is to say, in the capital of the country. But it is only on the supposition that such a decrease of capital would not follow a decrease in the supply of labour that we are entitled to expect a rise in wages, or in the value of labour; and it so happens that this very rise of wages and of the value of labour have, in general, a tendency to bring about, as an ulterior result, a diminution in the capital of the country; so that it is possible that, after enjoying for a period a higher rate of remuneration, regard being had to the amount of work done, than previously, the working classes might find that rate reduced to its original level. This result would follow from the fact that every addition to the cost of labour involves a corresponding deduction from the rate of profit; and, as the quantity of capital accumulated and invested depends, in a great measure, on the amount of profit which the investment of a certain amount of capital may be expected to yield, the rise in the value of labour, by diminishing the rate of profit, tends to diminish the capital of the country, and so, in turn, to reduce the value of labour.* It should be observed that these propositions as to the effect of an increase in the value of labour on the accumulation of capital, are not put absolutely, as though such a result were inevitable, but merely as possible and not unlikely consequences. It may happen that the instinct of accumulation is so strong in a country that the rate of profit there will bear a very considerable reduction, without occasioning any decline in the capital; and, if so, the rise in the value of labour which produced the fall in the rate of profit will be permanent.

Supposing this to be the case, it is clear that any circumstance which has the effect of diminishing or preventing the increase of population must tend to raise the rate of wages, since the larger the population, the greater the number of labourers. It would be vain to attempt to conceal that this lands us upon one of the most debatable—or, at least, debated—spots of ground in the whole science of Political Economy—the Malthusian doctrine of Population. Whether it is right or politic to endeavour to restrain the limits of population by encouraging men to emigrate, or to exercise those prudential restraints which Malthus pointed out as the means to be employed for the purpose, is a question I shall not here venture to argue. I shall content myself with having pointed out the effect which diminished competition for employment, arising from a decreasing population, produces on the earnings of the working classes, and leave them to judge whether this be a sufficient motive to act as such a result would seem to dictate. I cannot, however, conclude this article without mentioning that it is not alone by augmenting the money-wages of the labourer that a diminution in the number of the labouring classes improves their position, but by cheapening the articles on which most of the wages they earn are expended. The greater part of the things consumed by the working classes consist of raw or slightly manufactured produce; most of it raised in the country where the consumers live, because such commodities are too bulky to be imported from a distance. Now, it is one of the universal truths of Political Economy, that the more produce is extracted from the ground in any year, the more will it cost to raise any given portion of it, unless improved processes of manufacture are adopted in raising the larger supply. For example, the greater the number of quarters of corn grown on a farm, the greater the average cost of growing each quarter. It follows from this, that as the population of a country advances, and requires annually a greater quantity of the necessaries of life, the more costly these things tend to become, and *do* become, unless the progress of agricultural skill and knowledge counteract this tendency. And, on the contrary, every check to the growth of population acts in quite an opposite way, rendering the necessaries of life less costly than they would otherwise have been. Thus, then, it appears that a diminution in the numbers of the labouring classes, causes a double improvement in their condition, enabling them to earn more money, and to obtain in exchange for any sum they may have to spend more of those things they most want.

* Continued from page 218.

* This point has been already elucidated more fully in a former chapter

A SHOEMAKER NATURALIST.

A few weeks since Mr. Thomas Edward was elected an Associate of the Linnæan Society of London. The *Banffshire Journal* says Mr. Edward is a journeyman shoemaker, whose researches have been rewarded by the discovery of something like thirty new species. These consist of annelids, tunicate mollusca, sponges, shrimps, and other smaller species of crustacea. Besides redeeming one from oblivion, he has also brought to light two entirely new specimens of fish. Mr. Edward's devotion to his favourite pursuit at one time seriously endangered his health. It was his custom, for nearly five successive years—from 1840 to 1845—to spend most of the nights in the open air. Indeed, he might, during that period, be truly said never to have been in bed save a small portion of the first and last days of the week. It was his daily practice, on returning from his work at night—and shoemakers (which trade Mr. E. still follows) then worked from 6 a.m. to 9 p.m.—to bundle on his collecting apparatus while he was taking his supper, and start with a portion of his meal in his hand. His "collecting apparatus" comprised insect boxes and bottles, and he had usually a botanical book, and, besides all, a gun. So accoutred, he scoured the country, or as much of it as he could before darkness compelled a pause. When he could no longer "observe," he dropped down by the side of a stone, or dyke, or ditch, or tree, whichever came handiest. Here he lay, or sat, or slept, as the case might be, till daybreak enabled him to resume his searches, which were continued till he had to return to his daily labour. It was no unusual circumstance, when he had wandered too far, and met with a more than usually attractive spot, that he would strip himself of his gear, gun and all, which he would hide, and thus lightened of everything, save his specimens, would take to his heels, and run at top speed, to be at his work at the proper time. Weather never daunted him; and his neighbours used to say, "It was a stormy night that kept that man in the house."

*The Mechanical Part of a Prize Essay.**

The young writer of whom we have spoken acted upon the various rules given by us, and soon had the satisfaction of finding his essays all successful. There is reason to believe they all had special merits. There were seventy-nine competitors, and when the essays were printed they could all see them and judge accordingly. These would be sharp-eyed and interested critics; but they generally admitted that the essays were as good as theirs, and some even owned that they were better; so that their success did not depend upon the writing, but upon their intrinsic merits, which should always be the case; but their chances of being well read and well judged were undoubtedly promoted by the perspicuity of the caligraphy. When the judges met and found, as was the case, that there were

* Concluded from page 262.

nearly three hundred separate manuscripts to look over, the first thing they naturally did was to select those which were the most plainly written, and required the least time to read; and it proved that those of the young man of whom we have spoken were among the plainest. The consequence was, they were read first and read oftenest; and, as they had merit, that merit became well understood. Everybody who reflects must see that this would be the case. Those gentlemen who undertake to be adjudicators have a very onerous task before them, requiring days of patience and labour. Weariness must be occasioned by the perusal of many piles of manuscript. It is not only a great service, but a great favour, when gentlemen of high character and position, and of many engagements, consent to perform this labour for the sake of advancing the interests of public knowledge, and for the encouragement of young writers; and whatever mechanical care essayists can take in rendering their writing plain and clear, diminishes the labour and saves the time of those who generously perform this gratuitous work.

If the reader ever sat in an editorial room, he has seen the immense amount of labour which has to be performed in the perusal of fifty or a hundred letters, which arrive in the course of a day—some written in a small hand, in an obscure way, in crowded lines, on both sides of the paper, with the tops of the tall letters running into the tails of the letters of the upper lines; on blue paper, and in pale ink—and he can well imagine how the eye must ache before all these elfin characters are made out. The negro "drovier" could count all his pigs except the one which skipped about, and no less the words of doubtful meaning, which skip about a letter, give more trouble to count than all the others. With the best intention, and the greatest desire to consult the wishes of the correspondents, the most laborious editor must, from sheer exhaustion, now and then lay aside letters from this cause, and many valuable thoughts and suggestions thus become lost to the public. Writers who think of this will readily own that a few hints on such a subject, in connection with Prize Essays, are relevant, and may be useful.

In these remarks we have set no hard task to any young writer. The mere mechanical operation of writing plainly is within the power of every one who gives the matter a thought; and in any case where there is not time, or it is too much trouble, to re-model the handwriting, it is easy to have the essay, when composed, copied out by some person who writes a plain hand. Lest we should discourage any one, we repeat that by good writing we do not mean grand writing. The plainest, simplest hand that can be easily read, is good writing. Adjudicators do not want grand writing, but plain writing; and every person who can write at all, can write plainly if he thinks of it, and takes care. Indeed, the hand of every person who can write would be rendered plain by the mere mechanical arrangement of writing the words clearly apart from each other; keeping a good space between the sentences; using ruled paper; having the lines tolerably wide apart; keeping a good margin on each page; writing only on one side; using black ink and white paper. These rules a child might observe. They are rules that gentlemen often neglect; but the observance of which will give every writer of a prize essay one important chance of success. The music of Handel would be lost if executed so that it could not be heard. Demosthenes would have composed his great orations in vain had he not delivered them with a distinct articulation. The wisest thoughts that were ever expressed would be written to no purpose unless they could be read. And this is the moral of our story.

*Coining Dies.**

An arduous operation remains to be performed before the matrices are practically available for their destined purpose—it is that of hardening them. It is also a hazardous one, for the steel may, after all, "fly" or fracture in the process, and the artist's labour will, in such case, prove to have been labour in vain. There is no evading the business. In their present soft state, the matrices, though very beautiful as works of art, are simply useless, and they must pass through fire and water to their high destiny. The engraver's hope lies in the excellent character of the metal, and the practical knowledge and great care of the die-hardener. For the preservation of the delicate

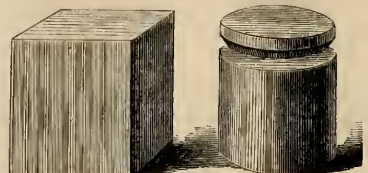


Fig. 1. Fig. 2.

lines of the engravings, especial means are taken. The surfaces are covered with a paste composed of lamp-black and oil, which forms a mask or protection to the devices. Rings of iron are also shrunk upon the circumferences of the embryo dies, to prevent their excessive expansion and possible fracture whilst in the furnace.

Once again they are now placed in an iron pot, smothered in charcoal, and put into a furnace. An hour's heating suffices; they are then with-

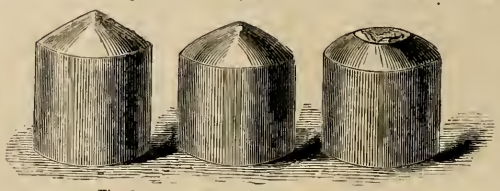


Fig. 3. Fig. 4. Fig. 5.

drawn and plunged sharply, by aid of tongs, into a cistern of cold water. This is the critical moment of their existence. If no unusual sound—no singing noise—is heard, all is well; if, on the contrary, either die is musically inclined, its song will be found to proceed from a mouth, or fissure, in the metal, and the engraver's heart will fail him, for he then knows that his work is spoilt. This latter contingency seldom happens at the Mint, fortunately, and that from the causes

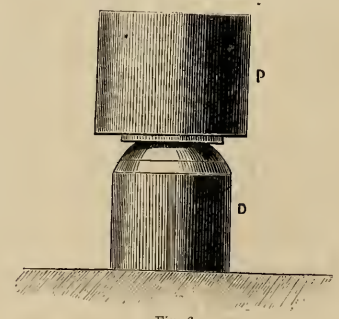


Fig. 6.

named—good steel and careful workmanship. Allowing that all has resulted satisfactorily, the masks are removed, and the *matrices* handed to the polisher, who, by pressing them against a running disc, quickly gives their "tables," or flat surfaces, a mirror-like brightness. They are next tempered—that is to say, reduced from their state of extreme hardness to one of toughness and moderate hardness. This is effected by placing

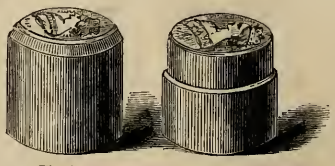


Fig. 7. Fig. 8.

them on a red-hot bar of iron, bringing them to a pale straw-colour, and then plunging them again into cold water. The matrices are now perfect. In the meantime, two other blocks of steel have been prepared, by means of forge and lathe, and are waiting to be dealt with. The face of each of these has been turned to a flatly-conical form, and both are as soft as annealing can make them. This prepares them for the press—a massive implement, through the centre of which passes a coarse-threaded screw of six inches diameter, weighted by two heavy iron arms of six feet in length.

To the lower end of this screw one of the matrices is attached, with its engraved surface downward, and below it stands one of the recently-prepared steel blocks, with its conical face looking upward. All being now ready, several workmen seize the fly arms, and, walking round with them, raise both screw and matrix several inches. Suddenly they release their hold, and the weighted arms of the press revolving with speed and force, drive down the matrix until it impinges with a dull, heavy thud upon the softened block of steel. Again the screw and matrix are raised in a similar manner, and the depressed apex of the cone-topped die upon which the latter struck, bears witness to the effects of the impact. In truth, a partial impression in relief has been transferred from the matrix to the nether block. This has, however, become hardened by the blow, and must have another annealing ere it can be made to take a complete copy of the engraving. This effected, it is once more placed on the bed of the press, the matrix disengaged from the screw being carefully fitted upon it. A blank disc of steel now takes the former position of the matrix; the fly-arms are raised and released as before; and, gathering momentum as the press-screw revolves, the hammer-block falls heavily upon the matrix. The effect of this second blow is to make the transfer as perfect as is that of a seal upon molten wax, and the lower die becomes what is termed a puncheon. The second matrix and block are treated in a manner precisely similar, and thus is obtained another puncheon—the first representing the obverse, and the second the reverse of the florin. These are afterwards hardened and tempered, and thus prepared for their arduous task—the multiplication of coining dies *ad libitum*. The matrices, having accomplished *theirs*, are placed on the shelf.

Bars of cast steel for florin dies are about 10 ft. long, $1\frac{3}{4}$ in. broad, and $1\frac{1}{4}$ in. in thickness, and upon these the smith is the first operator. They are heated to redness, and cut into short pieces $1\frac{3}{4}$ in. long; in this form, therefore, they resemble Fig. 1. Hammering in a semicircular swage converts them speedily into a cylindrical shape, and then, to prepare them for the next process, the ends are cut off, and this is seen partially effected in Fig. 2. Thus the smith proceeds until say a hundred blocks are so far advanced, and then the cutting and coning-up, as shown in Fig. 3, are accomplished. The annealing furnace is their next destination, and a very gradual cooling afterwards among the ashes and embers of the furnace, leaves them ready for the turning-shop. There they are first "topped," which means that one end of each is turned bright and conical, as indicated by Fig. 4. Now they are prepared for the multiplying press, which resembles closely that already referred to, and to the screw of which a puncheon is affixed. One by one the turned blocks receive, by force of pressure, imperfect copies of the puncheon, and in this stage Fig. 5 will convey a good idea of their real appearance. Another annealing follows, and then a second series of blows administered to the puncheon, represented by P in Fig. 6 as resting upon the block or die, D, perfects the impression, and reproduces, in fact, a faithful copy of the original matrix. This may be said of both obverse and reverse, but the former only is given by way of illustration in Fig. 7.

Thus it will be understood that, by sheer mechanical force, a hundred *fac-similes* of the engraver's original dies have been obtained, and that, at the Mint, thousands of them are produced in the same way. This remark applies to coining-dies of every kind, although it has been found convenient to speak only of those intended for the stamping of florins.

The superfluous metal around the engraving is removed in the lathe, and the die is brought to its gauged diameter by the same agency, when it

* Concluded from page 261.

takes the form of Fig. 8. Now it is ready, therefore, after hardening, polishing, and tempering, for transference to the coining-press room, and the imprinting of twenty or thirty thousand discs of metal with florin devices, by which time it will become "old steel," and unfit for further duty.

The power of multiplying dies will be recognised as of great value to the Mint, as the engraver is only required to engrave one pair of dies for each denomination of coin. If a puncheon fails, it is easy to produce another from the matrix; while, if the matrix should break down, one of the impressed dies may be used in its stead. Puncheons, as a rule, however, last for many years, and are the parents of tens of thousands of dies. Since the Queen came to the throne, not less than 100,000,000 of sovereigns have been struck at the Royal Mint; and the dies used in the accomplishment of the work owe their existence to two pairs of puncheons only! This statement will convey a clear idea of the great economy of the system of die manufacture by the process of multiplication. In the production of medal dies the mode of procedure is very similar; but from the bold relief of the devices, many more annealings and many more blows of the press are necessary to make their impressions perfect.

Electrotyping.

Bunsen's Battery.—This, like Daniell's, is a constant battery. It is composed of a cylinder of amalgamated zinc, z (see Fig. 1), placed in an earthenware or glass vessel, v, containing diluted sulphuric acid. This cylinder surrounds a porous vessel, P, which contains a cylinder of carbon, c, dipping into nitric acid. To the upper portion of

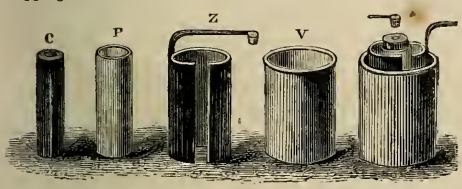


Fig. 1.

the zinc a strip of copper is soldered, the conical extremity of which fits tightly into an aperture pierced in the upper portion of the carbon of the adjoining element. By these means communication with one element and another is established.

The negative pole is always at the extremity of the pile terminated by the zinc; the positive pole at the other extremity.

The best proportions of water and sulphuric acid to employ to form the acidulated water in which the zinc is immersed are one part acid to nine parts water. The nitric acid surrounding the carbon must be concentrated, but not fuming.

Smee's Battery.—This form of constant battery is mostly employed in the production and duplicating of copper plates. The voltaic couple consists of a plate of platinised silver placed between two surfaces of amalgamated zinc. The silver communicates by a wire with the positive pole of the decomposing apparatus, or the *anode*, which must be of equal surface with the mould. The zinc is connected by a wire, fastened by a screw to the mould placed at the negative pole of the decomposing apparatus. The voltaic apparatus must be charged with sulphuric acid diluted with fifteen or sixteen times its weight of water.

The decomposing apparatus may be either vertical or horizontal. If the latter, the mould must be placed at the bottom, else the deposit of copper will not be of uniform hardness. The vertical form is considered best for slow deposit; the horizontal is more appropriate for a rapid deposit of copper.

When the apparatus is filled with liquid, take a piece of copper of the same dimensions as the plate to be moulded or copied, and put it in communication with the silver of the battery. The battery being charged, the vessel filled with the solution, and the piece of copper to be dissolved (anode) being immersed in the solution and connected with the silver of the battery, the wire which is soldered to the plate or mould on which the deposit is to be made is put into communication with the zinc of the battery; and the operator must take especial care not to immerse this plate or mould into the solution until the last thing, in order to complete the circuit with it. These arrangements being properly made,

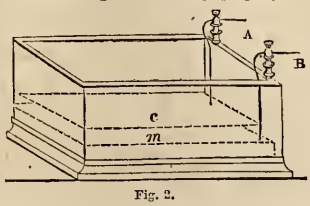


Fig. 2.

we see a deposit of pure copper formed, which does not adhere to the original plate, on account of the film of air which separates them, or the very thin coating of wax with which the plate has been previously rubbed. In the engraving, *m* is the anode, connecting with the silver by the wire B; c is the mould on which the copper is deposited, connecting with the zinc by the wire A.

Definition of the Electric Current.—When the opposite poles of an electric pile are connected by a good conductor—as a copper wire, for example, the electricities are set in motion in the wire. The positive electricity passes from the positive to the negative pole, the negative electricity travels in the opposite direction. It will be perceived that there are two currents of electricity. To designate the direction in which they travel, it is only necessary simply to indicate the path the positive electricity takes; it being understood that the negative electricity takes the opposite direction. For example, if a wire, A B (see Fig. 2), has its extremity A in communication with the positive pole of a battery, and its extremity B in communication with the negative pole, we say that the current in the wire goes from A to B; but in speaking thus it must not be forgotten that we are naming the direction in which the positive fluid travels, and that we tacitly proclaim that the negative fluid travels in the opposite direction. The current which circulates when the poles are in communication persists as long as this communication continues established. There is a constant flow of electricity which can be disposed of for various purposes.

Chemical effects of the Battery.—If we attach a metallic wire to one of the poles, and a second wire to the other pole, and then immerse these two conductors (electrodes) in a saline solution—sulphate of copper, for example—taking care that the wires do not touch, we perceive that the metal of the salt in solution becomes deposited upon the negative electrode: the other elements of the salt go to the positive electrode.

The same experiment performed upon an alkaline, or earthy salt, placed in solution in a U tube, gives the alkali at the negative pole, and the acid at the positive pole.

From this it appears that the salts do not all behave in the same manner under the influence of the electric current; but the difference in the results observed is not due to a difference in the action of the current: it arises from the oxidisability of the alkaline and earthy metals, which, upon their arrival at the negative pole, decompose the water and become oxidised, with a disengagement of hydrogen.

The Baths.—The apparatus by the aid of which we may decompose the various metallic combinations employed in electrotyping having been described, we proceed to give some details upon the combinations themselves.

Copper Baths.—The sulphate, chlorate, nitrate, and acetate, are the combinations employed, especially the sulphate, on account of its cheapness. This salt presents a considerable resistance to the passage of the electric current, and the conducting power of the solution may be increased by adding to it a small quantity of sulphuric or nitric acid. A solution containing 1 lb. of sulphate of copper in three and a half pints of water, and one-third to one-half of its volume of sulphuric acid, diluted with eight parts of water, forms a good working bath, especially when operating with non-conducting substances, coated with plumbago.

The soluble electrode is always in copper: the mould may be formed of plumbago, carbon, gold, silver, platina, nickel, as well as of copper.

The discoverers of electrotyping are of opinion that it is always objectionable to employ an acid bath, yet many persons prefer it. The nitrate, chloride, and other soluble salts of copper, present no advantages over the sulphate.

Silver Baths.—The choice of the silver salt to be employed depends upon the nature of the mould, which may be gold, platinum, silver, copper, carbon, or a plastic substance covered with one of these substances. Sulphate of silver answers very well for metals which have more affinity for oxygen than silver. Of all the salts that can be employed, the nitrate of silver is the least suitable. The following is the composition of the silver bath now generally adopted:—Dissolve 2 lb. of silver in 6 lb. of nitric acid, and gently evaporate the solution over a spirit lamp, until the resulting nitrate is fused. By this means we drive off not only the excess of acid, but also reduce the copper that may be present. Then dissolve the nitrate in a gallon of water. Then, in another vessel, dissolve 4 lb. of cyanide of potassium, and add the solution gradually to the silver solution: cyanide of silver is precipitated, and the nitrate of potassa formed remains in solution.

This operation, conducted with care, up to the moment when the addition of a small quantity of cyanide no longer causes a precipitate, admits of the removal of the nitrate of potassa in solution by decantation. The precipitate remaining in the vessel is washed in pure water, and immediately dissolved in 4 lb. of cyanide of potassium. Then sufficient water is added to make up ten gallons. This bath is not immediately ready for use. Before it will yield a good deposit it must be mixed with an equal quantity of an old bath; or, to impart to it the qualities of an old bath, it must be boiled for several hours; or, which is more to be depended upon, 2 lb. of yellow prussiate of potash is added to every 4 lb. of silver. But this last composition of the bath, although most generally employed, is not adapted for brilliant silvering.

Gold Baths.—Gilding may be done either hot or cold: the composition of the bath is the same in each case; only warm gilding is generally richer in colour, and is usually adopted where the baths can be heated by steam.

The bath is formed of the double cyanide of gold and potassium, dissolved in an excess of potassium. To prepare it, dissolve 2 oz. of gold in *aqua regia;* evaporate it to a syrupy consistence; re-dissolve it in warm water, and add, little by little, 2 lb. of cyanide of potassium, previously dissolved in water, and thus form 11 gallons of bath. It is best to boil it several hours before employing it. The most suitable temperature for operating is 160° Fahr.

* Continued from page 260.

ENGLAND'S HEROES.

Old England has warriors plenty,
And heroes who guard her still,
Who fight for her peace and glory,
Who battle through good and ill;
And mightier triumphs they win her,
These heroes and soldiers true,
Than ever she won with her legions,
At Alma or Waterloo.

Shall he have no place of honour,
No laurels to deck his brow,
Who fights in the ranks of progress,
Who battles with spade and plough?
Shall he have no word of welcome,
Who struggles with heart and brain,
To grapple the wrongs and evils,
That smite us again and again?

Who faces a superstition,
Who preaches an error down,
Is he less worthy of honour,
Less worthy a hero-crown,
Than he who from fields of slaughter,
And red with a brother's gore,
Comes welcomed by trump and banner,
And thunders that shake the shore?

The heroes whom we would worship,
The heroes we would embrace,
Are they who have toiled and suffered,
And planned for the human race;
Who knock at the hearts of the people,
And fill them with faith and love,
Who shed on our night of darkness
A gleam of the light above.

Matthias Barr.

THE NEW FACTORY ACT.

The factory inspectors report most favourably of the first year's working of the Act of 1864, placing under the Factory Act regulations several manufactures which till then had been a law to themselves. Some master potters, indeed, are desirous that "full time" should begin at an earlier age than the Act will allow; but, says Mr. Baker, "I have seen so many masters recant their objections to the Factory Act system. There are some few who, even in this trade, in which art is everything, do not seem to appreciate thoroughly the value of an educated class of artisans." Young hands may be scarce at pottery wages; coal and iron works compete more and more for them every year; but immigration is taking place to some extent, and machinery is likely to be adopted more rapidly than was anticipated. The old system, with its reckless expenditure of life and disregard of morals, will give place to a more extended and less costly method of production. There is, already, a visible improvement in workrooms. The Act has the effect of making more regularity necessary. Mr. Campbell, of the firm of Minton and Co., states that the quality of their ware has been improved; they have less spoilt ware since the greater regularity of work has put a stop to hurried production. Masters find that the men come earlier and lose less time, and as much work is produced as before. Mr. Baker hopes that we are on the eve of a great sanitary improvement in the Potteries. The workshops, in which 28,000 artisans are employed, have been whitewashed and cleansed, which, in some instances, had not been done for twenty years; the means of ventilation have been greatly multiplied, the hours of child labour have been diminished without diminishing production; 1,600 children—most of them never at day-school before—have been placed in good schools, where they sit side by side with children of the upper working classes and of tradesmen; and the effect is seen in the altered tone of conversation in the workshop, in in greater tractability, more cleanliness, less precociousness, streets quieter at unseasonable hours, and homes with more of domestic enjoyment. Masters are stirred up to make improvements as the workers become more respectable. Stoves are being ventilated, and the heated chamber cut off from the workshop, and this with a great economy of fuel. So in the manufacture of lucifer matches, of which such sad disclosures were made, we are told of a firm who have the dipping of the matches, the most unhealthy part of the employment, done by machinery. Here again some manufacturers complain of the limitation of the hours of work, and the consequent hindrance; but, as a sub-inspector says, "there's a certain amount of work in a person, and when that's out it's all he can do;" and were it otherwise, children should not be subjected to an amount of labour which destroys their health and strength. Of the percussion-cap manufacturers, one of the largest manufacturers at Birmingham says that the cap-fillers earn as good wages and do as much work as before, and all are away at 6 p.m., instead of being kept late at night from the desultory manner in which the work used to be done. He observes a great improvement. Paper-stainers also declare that they find no decrease of production, and this without additional hands being employed; the work is done with more energy than when the hours were irregular and unrestricted. "The young folks are not so weary as with the former long hours, and more work is produced in the same time." The fustian cutters, also, with factory hours cut as much as they were ever required to do; "the hands stick at work, knowing they will have to give over at a certain hour." "The character of the trade is raised." The prices of the work have been raised greatly; the earnings of a fustian cutter used to be the earnings of a child, as child and man had the same amount of daily labour; but, under the new Act, the child is forbidden to work until fully equal to it, and the man earns a fair day's wages. Unfortunately, the Act applies only to work for hire, and parents may work their own children, therefore, as long as they please; young workers go home from the factory when it closes, to be compelled to work for their parents. But the result of the Act is nothing but a series of gains. It is true that children, prohibited from working full time in these manufactures, may be, and are, sent by their parents to other employments not less injurious, where they may work full time; but Parliament will, before long, consider the condition of these trades also. Three or four firms in Birmingham, engaged in manufactures reported upon but not yet made the subject of legislation, have already, in anticipation of it, begun to work Factory Act hours. Mr. Baker gives the following, as the result of his long knowledge of factory life:—"Commerce seems to be growing faster than the population, and as the power of wages strengthens, we may be certain of what the result will be without the controlling influence of education. My belief is, that factory labour may be as pure, and as excellent, and as obedient as domestic labour, and perhaps more so, where the master wills a discipline, and enforces it. I have known many such examples."

Of the 1,285,000,000 people now in the world, 700,000,000 wear cotton exclusively, and all but 70,000,000 use it more or less.

*How Working Men's Clubs and Institutes Sometimes Fail.**

BY THE REV. H. SOLLY.

The next case of failure we may look into occurred in the town of B——, where a Club and Institute was commenced under very favourable auspices, and on rather a large scale.

The movement was inaugurated in the year 1863, by a large and enthusiastic public meeting, at which the Mayor presided. It was addressed by several influential inhabitants, by working men, and by myself. A good provisional committee was appointed, and premises were soon engaged, which, on the whole, appeared tolerably well suited for the object—the best, in fact, to be had, though by no means perfect. They consisted of a large hall and gallery, capable of seating at least 1,000 people, and three or four club-rooms partly formed out of one end of the gallery by wooden partitions.

A large number of members were soon enrolled, and for a time everything looked most prosperous; but, unhappily, the same fatal mistake was committed here, as in the last case, of having two Committees. In the spring of 1864, I heard of these two bodies having come into collision on the question of Dramatic Entertainments, and was shortly afterwards invited to go down and discuss the state of affairs. This I did, and also attended another meeting about a year after the Club had closed, with a view to its re-organisation. On this last occasion, the causes of its downfall were very fully gone into, and I will now give the views of its chief supporters, as then expressed, reserving any comments I may have to offer till the end.

"The first difference of opinion that arose between the two Committees was in regard to keeping the Club open on Sundays; but that was amicably settled after some discussion, it being unanimously agreed that it should be open for a limited number of hours; that the newspapers should be withdrawn, but the periodicals left. The heavy rent, however (£100 per annum), soon began to tell against the Club. It was more than the Club could properly bear. Then a great mistake was made in admitting members as young as sixteen years. The premises, also, were not suitable. It was a great error having two Committees, but might not the same difficulties have arisen with Trustees? The worst part, however, was that the Elocution Class became a Dramatic Class, and then regular Dramatic entertainments, with scenery and dresses, were introduced, not at good long intervals—which would have done no harm—but once a week. After this, the whole life of the Club seemed swallowed up in these entertainments; couldn't keep up any Classes—not even the Discussion Class, or any other sort of entertainments. After a time, the dramatic entertainments themselves became disreputable, little better than a 'Penny gaff.'

"No doubt we did wrong in having two committees, but we didn't know any better. The general (gentlemen's) committee decided against the Dramatic entertainments, and then the break-up began. The gentlemen ultimately withdrew, and gave up the Club entirely to the other committee, who tried to carry it on for a time; but the chief part of the working men had left by this time, and though the dramatic performances were often crowded, the Committee soon found they couldn't meet their rent, and the whole thing was given up."

"The lad who sat at the door to look at the tickets as members came in, was only fourteen years old. Saw hundreds of lads admitted without their ever being questioned as to their age; and even many young girls." (This last, I think, must refer to the entertainment nights.) Various other remarks were made; but the foregoing sufficiently represent the general tenor of the discussion.

Comment.—As to the double Committee and the first founders of the Club "not knowing better," that was clearly their own fault (as in the previous case at S——), in not asking us what experience had taught us on the subject. It is the special function of our Society to collect this experience, and many of the failures that have taken place might, probably, have been avoided if the promoters had sent me a copy of their proposed Rules before finally passing them, or otherwise consulted us. Let me take this opportunity of saying how gladly I should at any time give the best advice in my power in regard to the Rules of Working Men's Clubs and Institutes.

The same remark applies to the early age named in the Rules of this Club for admission, as to the double Committee system.

Then, in regard to the Dramatic performances. Without pronouncing any opinion as to the propriety, in the abstract, of such entertainments, which it would be out of my province to offer, I must urge, as I did at every meeting I attended in B—— after the "vexed question" came up—first, that if people think it desirable to have dramatic entertainments, they had better form a society especially for that purpose, not convert a Working Man's Club into such a society; secondly, that there is a great difference between an occasional dramatic entertainment being given, say, two or three times in the course of the year, and having them every week. A private family may get up such an entertainment, say at Christmas time, and invite friends to witness it, without any evil consequences; but if it were repeated every week, the household would soon be thrown into disorder. There are many amusements which are simply beneficial coming very rarely, but which, from the very interest they awaken, and their exciting tendency, would be decidedly injurious by frequent repetition. Dramatic entertainments and balls stand in this category. Daily and weekly recreation in a Club is needful and good; but if it be of too stimulating and exciting a character, it tends to absorb all the life and energy of the Club into itself. Classes are given up, even ordinary amusements are voted "slow;" quiet, steady men drop away from the Club, which is no longer the sort of thing they want, and a break-up inevitably ensues. Clearly, the great majority of working men don't want incessant dramatic entertainments, which, if carried to excess, are, therefore, a palpable perversion of the objects for which the Club was founded. And, as one would expect, in the B—— case, the great majority of the audience at the theatrical exhibitions were under twenty years of age.

As to the rent, it was certainly very heavy, and I agree with one of the speakers above quoted that the premises were not very suitable. But they were the best to be got at the time; and with good management would have answered very well till better were procurable. For in the midst of so large a population as that of B——, the Hall could have been advantageously let one or two nights every week, on an average, and have paid half the rent itself. But when there was so little judgment or proper attention, as to allow of a lad of fourteen being placed at the entrance to examine and take tickets, one sees enough to explain other weak points in the management of the Club.

Answering the question of one of the above speakers, I think the same amount of collision and alienation would not have arisen between a committee and trustees as between two committees—first, because, though trustees certainly ought to have vetoed the constant theatrical representations, their authority would be much more readily recognised by working men than that of a second committee of gentleman; and secondly, because if some of the latter had been sitting on the working men's committee, they would have talked the whole thing over in a friendly way before the evil had grown, as it were, to a head, and by judicious and conciliatory counsel, would probably have nipped the mischief in the bud.

I am thankful to state that, after an interval of about a year and a half, another Working Men's Club and Institute has been formed in this town on a much sounder basis, with every prospect of a long and useful career. It would have been established sooner but for the difficulty of getting suitable premises. Some of the best men connected with the former effort, to whom great praise is due for the sacrifices they made to establish and maintain it, have cordially put their hands to the plough again; and others, equally efficient, both gentlemen and working men, have joined them.

I conclude this article with the following extract from the letter of an hon. secretary to whom I wrote concerning a Club, in the formation and management of which he had taken a leading part. I believe there is a great deal of force in his concluding remarks about the Foresters and

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* Continued from page 267.

Odd Fellows. It is quite possible social clubs so formed might be much better supported in some places than general clubs, and that there they should be established on that plan. But, as a general rule, one would much rather see the Clubs open to all working men than limited to those belonging to a particular Benefit Society or Trade. In this particular case, I however have reason to believe, that more regularity and business-like attention to the management of the Club would have made it thoroughly successful; but this does not diminish the importance of viewing the question in the light above mentioned.

"Dear Mr. Solly,— . . . . . I extremely regret to say that, practically, the Club is extinct. No Institution was ever more unfortunate in its early life. What with the two strikes, then a dishonest manager, then the necessity of my leaving the Club to those who were not sufficiently in earnest about it, its decline was inevitable. I have convinced myself, however, that another cause was at work to prevent such Club ever being *very* successful here. Our working men are very rough, with the exception of a small minority. The rougher ones have their Unions and Clubs for trade purposes, and they do not mingle with men of a different class, and the more intelligent men are nearly all Foresters or Odd Fellows. We have 500 Foresters in the town, and 100 Odd Fellows. Having joined this body, I see in their Courts the men to whom I looked for support in our Club, and who, I discover, find in Forestry much of that social life which we aimed to provide; and the discipline of the Court has no mean influence in the education of the members. I cannot but think, in looking at this Club question, that the true idea is that of Forestry—viz., the banding of men together for mutual comfort and support in times of trial, sickness, and for the affording opportunities for the moderate enjoyment of social intercourse. You have so long and well insisted on the necessity of the brotherly element being stimulated and strengthened, that it would be impertinence in me to argue how this is the principle of life, as it were, without which, blood, bones, and sinew are so much dead matter. I long to see the day when the various bodies of Foresters and the like shall dwell in their own club-houses, and combine all the features of the Institutions you have called into being, and those which now distinguish them from your progeny. . . . . Very earnestly wishing your Union every success, with kindest regards to yourself, I remain, yours faithfully," * * *

PROPERTIES OF NITRO-GLYCERINE.

Nitro-glycerine has been known to science nearly twenty years. It was discovered by the Italian Sombrero, in Pelouze's laboratory in Paris. The Swedish engineer, Alfred Nobel, was the first, however (in 1864), who turned it to practical account.

Properties of the Blasting Oil (Nitro-glycerine).

1. Nitro-glycerine is a light-yellow oily liquid.
2. Its specific gravity is 1·6.
3. It is insoluble in water.
4. Direct contact with fire, as, for instance, with a lighted match, does not cause it to explode.
5. The oil will only explode under certain circumstances, and it then burns away, leaving no residue.
6. It possesses great rapidity of explosion.
7. It can be kept for any length of time without losing in weight or in goodness.
8. It detonates on being struck with a hammer.
9. It can be heated without danger to 212° Fahr., but explodes at 356° Fahr.
10. It is poisonous, and causes violent headaches, which soon, however, pass off.

It may be proved, theoretically, that nitro-glycerine is stronger than gunpowder; for not only does its decomposition give rise to a larger volume of gas, but as the gas will be at a higher temperature than is the case with powder, we get a still greater effect. It has been calculated that nitro-glycerine has thirteen times the strength of an equal volume of gunpowder; eight times the strength of an equal weight.

Advantages of Nobel's Nitro-glycerine.

1. Considerable saving of labour in boring the holes for blasting. A small hole with the nitro-glycerine will do as much work as a large one with gunpowder.
2. Greater cheapness than powder, when power is taken as standard.
3. Blasting work can be done in a shorter time.
4. The fact that it leaves no residue after the explosion. This is important in working rock salt.
5. Great rapidity of explosion, which permits the nitro-glycerine to be used with advantage in loose rocks with many joints, where powder would have scarcely any effect.
6. The absence of danger in carrying it and storing it, in virtue of the properties described in 4 and 7.
7. The fact that solid tamping is not required. This saves time and expense, and lessens the danger.
8. Holes in watery places and under water can be easily charged. This advantage depends on the insolubility and specific gravity of the oil. All that is needed is to pour the oil by means of a tube into the hole covered with water. It sinks to the bottom, and the water above it does for the tamping.
9. It will blow to pieces lumps of metal.

Disadvantages.

1. The necessity of using cartridges for horizontal holes, and those sloping upwards.
2. In rocks that are much jointed, cracked, or cavernous, the bore holes must be made tight, in order to prevent the oil running out.
3. The effect on the nervous system and respiratory organs. The gases formed by the explosion cause headaches, and even sometimes vomiting. This is a hindrance to its employment underground, but is of little importance in quarries. The inventor is of opinion that it is not the gases formed by the explosion, but rather fine particles of the blasting oil, that are scattered about, which do the mischief.

Letters from Lancashire, by a Lancashire Lad.

VIII.—OPERATIVE NATURALISTS, &c. (*concluded*).

John Horsefield was born at Prestwich in 1792. His parents were very poor. His first schooling was at the house of a handloom weaver, who followed the two occupations of flinging the shuttle and teaching his scholars at the same time. The lads, about half a dozen in number, would sit about his loom, and go up to read their lessons to him singly, as he sat upon his seat-board. Horsefield was a very weakly lad, and suffered from fits of dizziness. He soon became passionately fond of books. With another teacher, to whom he went at nights for about two years, he obtained a knowledge of arithmetic—indeed, was so successful in his study of that science, that his master had to confess his inability to teach him more. Like many others of his class, his first inducement to the systematic study of botany was consequent upon the perusal of a copy of an old edition of Culpepper's "Herbal." He said that the romantic account of the virtues which Culpepper ascribes to plants affected his imagination in much the same manner that stories of giants did. He early took to his father's occupation of handloom weaver, and followed it—indeed, he depended upon work at it for bread—until his death, which occurred when he was sixty-two years old. It is interesting to trace this poor man's life—to see how, with all his disadvantages, he not only found time to pursue his favourite study of botany, but also managed to obtain a respectable acquaintance with astronomy, algebra, mensuration, politics, and verse-making. Before he could obtain any books on systematic botany, he had to join a society, of which his father was also a member. The small subscriptions were a long time in making up sums large enough to purchase the books needed. The first book which he obtained from the society was Lee's "Introduction to Botany," and here, for the first time, he came across an exposition of the Linnæan system. The Greek names puzzled him, but he determined to master them. He wrote the names of the twenty-four classes, and the explanations given of them, upon a sheet of paper, and pasted it to his loom-post, so that he could always look it over. By-and-by the names and characters of the classes, as well as the orders, were understood and treasured in his memory, and in his rambles he made practical use of his theoretical knowledge. Books were so scarce that, having obtained the loan of the two volumes of Turton's "System of Nature," which treat of the vegetable kingdom, he made what it contained his own by copying from it 1,640 essential generic characters. His knowledge of astronomy was respectable, although he had only one chance of looking at the heavenly bodies through a telescope. This was when he went with his father to see old Robert Ward, at Blackley. Besides letting them look through his telescope, old Robert showed them what he called a "solar system"—a rude mechanical contrivance showing the relative positions of the planetary bodies, with the sun in the centre. Young Horsefield was much struck with this, and made one for himself, perhaps ruder than its original, for it does not seem to have attracted him much afterwards. It became a plaything for his children, and was known to them, as they kicked it about, only as the "thingumbob." The chance expression of a friend seems to have awakened his curiosity respecting algebra. He borrowed books, and mastering the first four rules, he was soon mightily pleased that he could solve a question by simple equations. He tried to go further, but was so bewildered with surds and quadratic equations, that he gave algebra up altogether. But he never gave up botany. His proficiency in this science was such that for thirty-two years he was President of the Prestwich Botanical Society; and from 1830 to his death, in 1854, he acted as President of the Society of Botanists, which held its meetings on Sunday afternoons, in the villages situated within a radius of eight or ten miles of Manchester. As president, he must have attended hundreds of these meetings, and many thousands of specimens must have passed through his hands. His last days were made easier by a subscription, to which some of the most prominent gentlemen in and about Manchester contributed.

Those whom I have named so far excelled in botany, but I will now briefly tell the story of one whose special studies were in other branches of natural science. David Dyson was born in Oldham, in 1823, and in his early years he was a factory worker. Very early in his life he manifested a passion for collecting insects, and every penny he could possibly spare went to the gratification of his hobby. Before he was twenty years old he addressed himself to the study of ornithology and conchology, and his ardour was such that in 1843 he determined to make a voyage to America, with the special purpose of collecting specimens. He was at that time very poor, and totally unknown outside the district where he lived. His own savings, eked out by some money which an elder brother gave him, enabled the determined lad—he was then only twenty years old—to reach New York. When he stepped upon the shores of the New World he had only a few shillings in his pocket, but, undaunted, he set out on a tour through the States, across the Alleghany Mountains, and as far as St. Louis. He obtained bread by selling some of the specimens which he had collected to local museums. Before twelve months had passed he came back to England, and brought with him more than 18,000 specimens of insects, birds, shells, and plants; and amongst them were some which were very rare. Some of the leading naturalists heard of his doings, and were amazed at the success which he had achieved. He was invited to Sir Geo. Strickland's house, in Worcestershire, and the *Zoologist* commented upon the intelligence of this "young man, originally a weaver." He visited London, and, on getting to the British Museum, he found that his fame had preceded him. He was offered an engagement to go out to Central America to collect specimens. He started in September of the same year, and landed in Belize in November. He worked hard in Honduras until the end of 1845, and contracted disorders in the swamps there, which undermined his constitution. At Belize he received a sunstroke, and was obliged to return home. He had, however, been so successful that, before leaving, he was able to forward to England a very extensive collection, including a great variety of orchideous plants. The chief result of his enterprise was the addition of many thousand specimens to the British Museum; but he also executed private commissions, adding considerably to the magnificent aviary of the then Earl of Derby, at Knowsley. In 1846 the authorities of the British Museum sent him again to South America. This time he was accompanied by his brother, and after an absence of more than a year they came back, bringing with them, chiefly from Venezuela, a large collection of specimens, amongst them being a great variety of hummingbirds, moths, beetles, and shells. After this, David devoted himself mostly to the study of conchology, and, at his death, in 1856, at the early age of thirty-three, he left behind him a private collection of more than 20,000 shells, many of these very rare, and including about 10,000 different species. He was for some time curator at Knowsley, and held that post until the natural history collection there was sold. Although he was altogether self-educated, he succeeded in making friends of many highly cultivated men, and retained their esteem to the last.

Substitute for Silver.—An alloy of block tin 375 parts, nickel 55, regulus of antimony 50, and bismuth 20 parts, will be found to be useful in some cases as a substitute for silver, as it is unaffected by vegetable acid.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; and the Rev. J. Begg, D.D.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MAY 5, 1866.

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Alleged Decay of the British Race.

At the last meeting of that very useful society with the long name—namely, the National Association for the Promotion of Social Science, a paper was read by Dr. Morgan, of Manchester, upon the "Deterioration of Race." Not much attention was paid to it. It was voted to be a dry, but felt to be a serviceable subject; and, for a penny, the reader could obtain in either of the Sheffield daily papers as much information as he cared for about it. Now all the "town" are, and have been for some time, talking about the paper, which is published in a separate form and bought up at eighteenpence. Dr. Morgan is a Manchester physician, who has contrived, by the re-publication of his paper, to call attention to an important topic. Useful as the pamphlet is, it would be much more so were it more intelligibly written. There is a copious use of the words "former" and "latter"—words which always make obscurity more obscure, and ought to have been banished long ago from our literature.

A scientific passage is generally abstract enough without the perplexing references implied by "former" and "latter." No hearer of the paper read could possibly tell what was meant; and there are some passages in the pamphlet which the reader requires to go over two or three times before he can fix upon the subjects to which these execrable little words relate. This is a pity, because Dr. Morgan's paper is one of vital interest, and all such papers, of which half relates to science and half to morality, require to be simple, lucid, and so clear, that the unprofessional reader should be able to understand all about it.

The moral of Dr. Morgan's little book is, that owing to the increase of our large towns, the physical health of the nation is impaired and is impairing; that our young men are no longer fit for soldiers; muscular development is decreasing; the action of the heart is feebler than in our forefathers; the population have less stamina to resist atmospheric changes; men do not bear pain so well as formerly, and are more subject to disease. One would like not to believe these uncomfortable things, but Dr. Morgan states so many facts, and reasons about them so soberly; he states them with such scientific caution and moderation; he seems quite free from theoretical crotchets, and writes, when he gets clear of "formers and latters," with a strong, manly sense that carries conviction with it. His little book is worth the study of working men, and should find its way into their reading rooms. It is one of many valuable papers which the Social Science Association has caused to come before the public, and it ought to be in the hands of town councillors, aldermen, and mayors, and all persons having control of the physical arrangements of a town. It is on this account, and because these are the persons who can best give effect to the author's advice, that we wish it had been written with that peculiar popular talent which Dr. Andrew Combe and Dr. Southwood Smith distinguished themselves by introducing into medical literature.

Dr. Morgan considers that the polluted air of large towns, hereditary diseases propagated by vice, and facilities of intoxicating habits being acquired, are the three great causes which lower the health of the British race. He states some new facts. One is that the centre of a large town, such as Manchester, will be in winter eight degrees colder than the temperature of the outside of the town, only two miles away—owing to the noxious vapours being so dense and shroud-like, as to prevent the rays of the sun penetrating to the earth. He would clear dense neighbourhoods, erect air shafts in them, increase open spaces for playgrounds, construct streets at right angles, so that the current of air could sweep the vapours through them; widen all streets, keep houses low instead of lofty, and assimilate as far as possible the town to the country. Narrow streets, winding passages, elevated buildings, all prevent the circulation of fresh air and the ready access of the sun's rays. Dr. Morgan shows by tables, which seem perfectly reliable, that labourers living in the country are stronger and live longer than men in towns. The notorious over-crowding of country cottages, though productive of diseases, do not do the mischief which might be expected, in consequence of the greater amount of fresh air which the occupants have outside their houses, and in which their work is performed and exercise taken.

It appears that our great manufacturing towns are constantly absorbing healthy men and women, who are allured from the country, and whose health is deteriorated. The towns send back no healthy people into the country. Indeed, the towns send their healthiest families abroad as emigrants. Dr. Morgan proposes that we send our sickly population abroad, and keep the healthy at home. Dr. Morgan advises that young mothers be not suffered to work in factories; that public hospitals be provided, to which, when fever breaks out, the patients may be at once removed before the neighbourhood is infected.

Want of fever precautions has caused, in the course of the last two years, 2,500 persons to be carried off in Manchester alone; while the total number of cases cannot have fallen short of 20,000 persons. There seems something awful in this wholesale murder. Who can help wondering that a great and wealthy city should suffer this silent carnage to take place in its midst? Dr. Morgan is a great benefactor for calling attention, in his unpretending, sensible, yet forcible way, to these appalling facts. Working men themselves should give heed to them. By temperance, by prudence, by taking care where they live and how they live, they may do much to secure that health which is necessary to maintain the vigour of the race. Are not the facts in Dr. Morgan's little pamphlet suitable for the consideration of the Trades' Unionists? Individual men, sensible of the evils surrounding them, may be powerless to cause their removal, but a union of working men, speaking in the name of hundreds or thousands of their members, could exert a voice in favour of local sanitary improvement, which the public will would strengthen, and no municipal body disregard.

The Origin and Uses of Trade Guilds.

The rise and progress of trade guilds or fraternities forms one of the most important features in our national history. In early times they were, indisputably, one of the chief means of securing the foundations of our commercial prosperity; and although, in later days, they have been greatly shorn of their ancient proportions, it is both interesting and instructive to look back upon what they were, and what they have done for us.

Associations known as guilds, or *gilds*, took their rise in Anglo-Saxon times. The word itself is from the Anglo-Saxon *gildan*, to *pay*, and in its original signification implies the union of a number of persons as *contributors* for a common object. The earliest societies of this kind were formed for political purposes. An old Saxon law required every freeman above the age of fourteen years to find sureties that he should keep the peace; and it was customary for ten families to enter into a guild, or association, to guarantee the good conduct of their individual members. A common fund was raised for the payment of any fine incurred by the fault of one of the society. By degrees other objects were added to the original intention, and the guilds came to serve the purposes of the modern friendly societies, affording mutual aid in sickness, &c.

After this early period we find two distinct classes of association bearing the name of guilds. The one was purely of a religious, and the other of a secular nature. It is with the latter that we have to do, and will merely remark with regard to the former that they usually had at their head a council of thirteen members, in imitation of Christ and his apostles. In one society the thirteen were composed of twelve men and one woman, the latter representing the Virgin Mary. Even some of the secular guilds adopted this number in their councils.

The secular guilds distinctly recognised the promotion of trade or professional occupation as a principal object, and, next to this, the mutual relief of distress. Three of these guilds are mentioned in Anglo-Saxon times. The first and most important at that period was apparently the Guild of Knights, the members of which had to undergo certain trying ordeals of arms before they could be admitted to the fraternity. Edward the Confessor granted to this guild the first royal charter ever bestowed upon a company of this sort.

The other Anglo-Saxon secular guilds were the Steel Yard Merchants' and the Saddlers'. The merchants of the Steel Yard were a company of Germans, who came to England for trading purposes, and received peculiar privileges, for the encouragement of commerce with other nations. The Saddlers' appears to be the most ancient of the guilds or companies now in existence, and in

their early days were in close connection with the religious brotherhood of St. Martin.

Very few notices of the guilds in the early Norman times have come down to us, although there is sufficient evidence that the guild system at this period spread and progressed rapidly. Indeed, it was natural that it should do so; for, in an age of violence and disquietude, men engaged in peaceful pursuits would seek the strength that is in union by collecting together, and endeavour to obtain the Sovereign's recognition and protection. In the reign of Henry II., great-grandson of William the Conqueror, guilds had become common, and we hear of eighteen London guilds being fined for having set up without the king's licence. In this reign a royal charter was granted to the Cloth Weavers' Company, and very wide powers, to which we shall have presently to allude, were conferred upon it for trading purposes. We also hear at this time of the guild of Goldsmiths and the Pepperers.

A great deal of jealousy and rivalry existed between these early companies. Two of them, at least, came to desperate strife. In the reign of Henry III., the Goldsmiths and the Tailors fell out so seriously that they determined to settle the dispute by force of arms. They appointed a meeting of 500 men on each side, completely armed, who fought so fiercely that many were killed and wounded. The sheriffs interfered, with a strong force, to restore the peace, and seized some of the ringleaders, who were executed.

Charters were bestowed upon the Fishmongers and the Linen Armourers (afterwards known as the Merchant Tailors) in the reign of Edward I. The powers exercised by the guilds at this time are illustrated by an old author, who tells us that the Bakers held four "hallmotes" every year, to inquire into offences committed in their trade, and to punish sellers of light or bad bread. In the reign of Edward II., we find it the rule that no stranger should be admitted to the freedom of the City of London unless he was a member of some trade or "mystery."

In this reign, also, it was found that the Weavers were exercising too much power; and a court of inquiry into the circumstances was held at the Tower of London, by order of the king. The subjects included in this inquiry afford the best illustration that has come down to us of the real and assumed prerogatives of the early guilds. They were asked, among other things, why no stranger was admitted into their body without producing testimonials of good conduct; why none might have implements of the trade in their possession unless the same were testified to be good and honest; why the implements of members whose contributions were in arrear might be distrained by the bailiff of the guild; why certain mixed cloths might be adjudged to be burned; why none were allowed to work between Christmas and Purification Day, or at night by candle-light, &c. &c. They pleaded in answer the ancient charters of the guild; but the jury, without having power to set these charters aside, declared that the privileges of the company were exercised "to their own profit and the common hurt of the people."

Important alterations in the constitution and position of the guilds took place in the time of Edward III., but an account of these we must defer for another paper.

The Artist Workman.

INLAID WORK.

The visitor to our Working Class Industrial Exhibitions has frequent occasion to observe the numerous indications of the pleasure which working men evidently take in all kinds of inlaying work, and the large amount of skill and ingenuity—to say nothing of patient labour—displayed by them in the construction of articles in which such work is available. There are many reasons for this: the principal being the fact that this description of labour is comparatively easy, requires no complicated tool-work, and can be carried on by the fire-side. The characteristic defects of such articles is, however, the want of taste. No matter whether it be a table or a small box, the object aimed at is to expend as much labour, not taste, as possible in the ornamentation of the surface. Thus, a mechanic will make a table, the upper portion of which consists of 1,000 separate pieces of wood, the result being far inferior to that attained with far less labour where the workman is influenced by real taste. The design is often merely a repetition or variety of the chessboard pattern, or else consists of squares and ovals jumbled together in lavish profusion. Now, if the constructors of such articles were to strive to infuse a little more taste into their labour—to produce, for instance, such beautiful specimens of workmanship as that given by us in our illustration, they would do much to secure for these exhibitions an amount of art-prestige, in which they are now utterly deficient.

Manchester Unity of Odd Fellows.—At the recent quarterly meeting of the Nottingham District of the Manchester Unity, held in the People's Hall, the auditors expressed their satisfaction with the quarter's accounts, which were passed in the usual manner. It appears from the annual report that, during the past year, the total payments for sickness have amounted to £2,093 17s. 3d.; the payments for funerals, £384; the total amount paid for sickness and funerals, £2,477 17s. 3d., in addition to which £241 2s. has been paid to the widows and orphans of deceased members; the management and incidental expenses have been £69 1s. 1d., amounting on an average to something less than 5½d. per member. These expenses include salaries of officers, rent of room, deputies to A.M.C., gift to General Hospital, relief to travellers, distress gifts, postages, printing, &c. The report goes on to say that, though the sickness has increased, the funds have also increased by the sum of £286 7s. 9d. over and above the amount of the previous year.

A Bird's-Eye View of the Reform Debates.

The Speaker of the House of Commons is a gentleman of family, fortune, and high position. President of the most distinguished assembly in the world, the highest nobles—such is the etiquette of Parliament—bow to him as they rise or leave the House, yet he comes daily to his work under circumstances which would be considered a hardship by most working men. Quite unable to walk, he is drawn into the House in a chair. He hops with extreme difficulty into his seat, and when there he is unable to rise without great pain, and has to crave the indulgence of the House to permit him to put the questions of debate without rising. Yet, in this state, he sits eight hours a night in his chair.

Mr. Baxter, member for Montrose, who has strong, pleasant good sense, opened the debate on the second night in a speech serviceable, but not notable—certainly not equal to his opportunity, nor to the expectations formed of him.

Sir Bulwer Lytton—who some years ago published an account of the benefit to his health he had derived from the water-cure, is now in the enjoyment, from some fortunate cause or other, of better health than during the last session—delivered one of his great speeches. Contrary to his custom, he spoke from the front Opposition bench. His voice is thick, and often indistinct, but bold and open. Notwithstanding the many graces and accomplishments of the great novelist, his gestures are angular and awkward, and he violates all the rules of oratory except the one of speaking up. His sentences, however, atone for all. So sparkling, so graceful, they charm all listeners. Sir Bulwer inverted the logic of history; he suggested that self-government might do in a new country (where the people are without experience or responsibilities compelling self-restraint), but in an old country (where there is cultivation, property, experience, tradition, and a thousand checks upon errors of legislation) it would never do. Nevertheless, the country party cheered the eloquent orator all the same. There was in Sir Bulwer Lytton a noble and generous appreciation of the working class. To the Co-operative "artisans of Rochdale, whatever be their political creed, he would be willing to grant the franchise;" and then he broke out into this honourable apostrophe:—"Willing do I say?—that word is much too cold. I wish that, like some old commonwealth of Greece, we might admit them to the franchise by acclamation, too proud of such fellow-citizens to ask what rent they pay for their houses." Many sparkling and memorable things have been said in these debates, but nothing equal to this burst of geniality, in which the man of genius and the scholar got the better of the calculating politician.

After Sir Bulwer, arose a speaker yet more famous among thinkers—John Stuart Mill—who

delivered the most exhaustive and comprehensive speech—loftier in thought, keener in logic, than any the House of Commons has heard since the days of Edmund Burke. When Sir Bulwer sat down, dinner-hour had come, and the House thinned; but Mr. Mill, in his first few sentences, arrested attention, and kept it. Members stayed, and dinners were postponed. Alluding to Lord Stanley, who had seconded the now famous amendment of Lord Grosvenor, Mr. Mill said—"he put it to the noble Lord's (Stanley's) intellect, clear—and, because clear, impartial." These were the words which arrested the House. Nobody could have said them but Mr. Mill. It was a new order of compliment. It was praise couched in a luminous definition. In any other assembly than the House of Commons, such a remark would have been lost; there it arrested attention like an apparition. Mr. Gladstone turned round to the speaker, in what may be described as rapt admiration. Mr. Disraeli looked up with curiosity, and though Mr. Mill, using no notes, paused four times in his speech, the House cheered and waited until the missing link of thought was found. When obtained, Mr. Mill's hold of it, until he had fully expressed it, was tenacious.

When Sir Bulwer Lytton speaks he provides himself with folios of notes, indeed, his whole speech appears to be written out before him to which he refers to refresh his memory. Mr. Mill had prepared his speech, but had no notes of it. Even Mr. Bright, whose impromptu power is well known, avails himself of notes. Preparation is a great merit in oratory. To predetermine what you will say, and to provide indications of it, is a mercy to an audience. No hearers should trust those who trust to memory, or to chance. How much the eloquence of Parliament would be improved and abridged, did each speaker take the care Mr. Mill, Mr. Bright, or Sir Bulwer Lytton takes to prepare his speeches beforehand!

Mr. Laing and Sir George Grey were the most notable persons who concluded the second night's debate. Mr. Laing is nothing particular when he is not commercial. Sir George Grey neither excites the curiosity nor admiration, though he always commands the respect of the House. He is like a window, he admits light, but does not give it. He is useful, but not wonderful. He enables you to see what is to be seen, but he shows you nothing new.

The third night of the debate was neither dull nor brilliant, but a mixture of the two. Mr. Maguire, in a clear, loud-spoken, sensible speech, pleaded that pledges be kept and the working classes be invited within the pale of the constitution. Mr. W. E. Forster was far less interesting than when out of office. Mr. Layard, who followed, was infelicitous in his arguments; nevertheless, the member for Lambeth has a hearty friendliness for the working class, and vindicates them with a fearlessness which is more than politic: it is known to be real. After him, Sir Hugh Cairns, the most polished and subtle member of the Opposition, made one of his caustic and refined speeches, but without saying anything memorable.

The fourth night's debate was opened by the new member for Glasgow, who obtained credit for the way in which he seconded the address to Her Majesty on the opening of Parliament. Mr. Graham has the good sense to write his speeches, but this does not secure perfection, although it tends to check extravagance and persiflage. The excellence of what is written, as well as what is said, depends upon the ideas in the mind of the inditer. In proposing or seconding a ministerial address, the speaker has the advantage of official suggestions, and he may, if he pleases, avail himself of official revision. This appears to have been useful to Mr. Graham on a former occasion.

After him, came Lord Elcho, the only Scotch member who can be witty without being "wutty." Lord Elcho has a light, gay, airy manner, which gives to his speeches a colour of insincerity, or of utter want of seriousness. As, however, his lordship is known to have convictions, he does himself an injustice by the light Palmerstonian tone which he adopts. On this occasion, however, his gayness of tone was a merit in a debate which was growing dreary. A splendid voice, a confident manner, and a fluency which never falters, make Lord Elcho a speaker of interest. Sir William Hutt, member for Gateshead, defended himself with great spirit and eloquence against the reproaches levelled at him for having withdrawn the amendment of which he had given notice. The new thing of the night was a speech by Mr. Doulton, the member for Lambeth. Sitting beside his colleagues, he rose, and took the converse view of the question, giving a sharp personal antithesis to his opposition, both to his constituents and the Bill. His speech was well conceived, and particularly well expressed, and there was a certain power both in its conception and delivery which must raise Mr. Doulton's position in the House; but he bade openly for Opposition cheers, and obtained them. This speech will probably cost him £4,000 and his seat too. Costly oratory.

Mr. Milner Gibson followed, and to that suavity of address for which he is remarkable, he added what is remarkable with him, a dash of force and fire. His great superiority as a tactician over the less-calculating efforts of his colleagues was apparent in every sentence. He relinquished for a time his hold upon the House, making an excursion into the sea of statistics, where no man but Mr. Gladstone—and not he always—can allure followers from the shore.

The numbers of persons who throng to the House continued on the fifth night as great as ever. The expectancy of great speeches, which, however, were not delivered, kept up the competition for seats, but the debate was evidently lingering. Mr. Leveson Gower opened the debate in a speech decided, thoroughly liberal, fair, and sensible. Mr. Gregory followed with a sparkling speech, which would have been very effective had the points been kept closer together. Just as Lord Elcho happily relieves Scotch gravity with pleasantry, so Mr. Gregory tempers Irish vivacity with logical digressions and a certain classical polish. Mr. Young, the Scotch Solicitor-General, soon brought back the House to gravity. Sir Stafford Northcote, who could not be lively for the life of him, did no violence to his reputation, by being even interesting. Mr. Coleridge followed. He inherits an oratorical name, and brings into the House a perfectly parliamentary manner. Pertinent and practical, with a voice that would make even nonsense musical, he charmed the House by a speech calculated to advance the Bill.

On the sixth night of the debate, Mr. Bright, it was known, would "take the floor," as the Americans say, and the excitement to hear him speak was very great. The House had never been so crowded during the debate. Had there been an hydraulic machine at the doors, the applicants for admission could not have been compressed sufficiently to pack them all in. Many anxious to be present at the great debate were outside tonight. The fame of Mr. Bright as an orator had brought down large numbers of peers. It is certainly a great triumph to be the centre of such powerful attraction. Unfortunately, the orator was hoarse, which would rob any oratory of its charms. The most magnificent creation of Beethoven would come to grief with bad catguts. In addition, it was Mr. Bright's design to make merely a dispassionate plea for the Bill, which was, no doubt, the wiser course; but it need not have been so level, not to say tame. His peroration had the natural dignity of the speaker when he referred to the condition of the industrial classes, no longer pining for food, of whom it might be said, in the noble line of Sheridan—

"Content sits basking on the cheek of toil."

After Mr. Bright, Messrs. Whiteside, Walpole, and Goschen spoke in their characteristic style, and with the aid of an historical speech on the great men who have *not* sat for small boroughs by Mr. McCullagh Torrens, made up a useful evening. Mr. Whiteside did not excel. Mr. Walpole was not oracular, and when he is not, he is not interesting. Mr. Goschen did not speak in his best manner, though he used good matter.

The next evening, the debate was resumed by Mr. Lowe, in a speech of unexampled brilliancy, which extorted the admiration of all who heard it, although it opposed the principle of the Government Bill. It displayed the possession of a wonderful intellect, but will certainly render the speaker more unpopular than ever with those to whom he is opposed.

Several members followed in swift succession, among whom was Mr. Leeman, who argued that the spread of railways and commercial enterprise had created a large class of artisans who were deserving of the franchise, and denied that they would combine for political ends.

Then came Mr. Childers, who, possessing a large amount of colonial experience, was selected by the Government as the rival gladiator to Mr. Lowe. He controverted some of the arguments derived from the workings of democracy in Australia, and defended colonial legislation on such subjects as religion, education, and self-defence, maintaining that the defects of their commercial policy were attributable to the influence of the agricultural interest. In reply to the objection that the Bill would give predominance to the working men, he argued that no class could obtain predominance, except it could elect members from its own body.

On the concluding evening, Viscount Cranbourne made a powerful address in favour of the amendment. Captain Grosvenor and others, including Mr. Baines, followed on different sides of the question, the concluding speeches being delivered by Mr. Disraeli and Mr. Gladstone. That of the former was of characteristic quality; in that of the latter—spoken between three and four o'clock in the morning, the peroration surpassed all former efforts of the great master of oratory. "I ask you," said he, "in the language of Sir Robert Peel, to 'elevate your vision,' to raise it above the fears, suspicions, jealousies, attacks, and recriminations, and look onward to the time of our children and our children's children, and consider whether there is not a steady movement of the labouring classes onward and upward which calls for our attention, and demands that we should provide for these things while there is yet time."

Morning broke over London as the division was announced—For Ministers, 318; for the amendment, 313. Majority for Ministers, 5.

The Factory Poetess.

This is the age of working men poets. They are to be found everywhere, singing at the loom, in the mine, or, like Burns, behind the plough; but what of our working women? Have they no poetry in their souls? We have had many female votaries of the Muse, from Elizabeth Barrett Browning, with her wealth of womanly tenderness and impassioned pleading, to Eliza Cook, whose simple lyrics of every-day life have found their way into the hearts of our toiling millions, and there made a home for themselves. But where are our working women singers? There surely must be some. The love of poetry cannot be dead within the hearts of those who share with man the daily battle for bread, and whose gentle nature and loving sympathies shed a golden halo of happiness around the lowliest abode. Nor is it dead. Amid the din of the factories and the noise of the workshops, we sometimes hear the soft, tremulous notes of those who, like Ruth Wills, strive to lighten, with the aid of song, the dark and gloomy path along which Labour has so frequently to travel. We cannot believe that such women are rare; it is their violet-like modesty which prevents them from obtruding themselves into the glare of public notice. At any rate, such was the case with our factory poetess—the song-maiden of labour—Ruth Wills, whose life, simple as are its details, has a touch of pathos.

"My parents"—says our young poetess—"were poor and illiterate; but they belonged to that illustrious band who are 'rich in faith, and heirs of the kingdom of heaven,' and they sought, by every means in their power, to bring up their children to honest and industrious habits, and to instil into their minds sentiments of piety and virtue. Among my earliest recollections is that of being sent to a dame's school, where I imagine I could not have been a very docile pupil, as I well remember some rather sharp contests carried on between the good old dame and myself concerning the pronunciation of certain words, and for which, as I would not give up my own opinion, I received some floggings. At seven an irreparable loss befell me in the death of my beloved father, who had been a most affectionate parent. He had served in the army, and was stationed with his regiment at Madras for eleven years; and many were the tales of that land of the sun with which he was wont to amuse his children. I fancy that his descriptions of the tiger-haunted jungles, of the luxuriant vegetation, and of the poor soldier's weary march under the glowing sky of the tropics, must have been tolerably graphic; at any rate, they took great hold of my imagination, for I

used to dream of them years afterwards. My loss, I said, was irreparable, though, of course, I was too young to know its full extent; but I learned some lessons from the meek resignation and strong faith displayed in his last days which I have not yet forgotten. My mother having now nothing to depend upon but the product of her own industry for the maintenance of herself and two children, was obliged to go out to work and leave my sister and myself at home to keep house, setting us our task work of seaming hose every morning before she went, that we might be getting into the way of earning our own livelihood.

"When I was between eight and nine years of age, I was considered quite old enough to be sent out too, and a place was obtained for me accordingly, where I was employed in various kinds of warehouse work, and for eighteenpence per week I had to labour from seven in the morning until eight or nine at night; I was, however, allowed one hour in the week, as a great favour, to attend a writing-class held at our Sunday-school. After some time I left this place to go to another, where I was promised better wages, but I had to work more hours still, and was treated altogether so hardly and so harshly, that I do not love to think of it. It was—

'Work, work, work,
From weary chime to chime;
And work, work, work,
As prisoners work for crime.'

"It was well that this period did not last long, or its influence would have gone far towards counteracting all the good I had received from other sources. But a better time was at hand—work grew scarce, and what might, in some respects, be considered a calamity, became to me a positive blessing. It was then that I first learnt to love Nature, or rather it was then that my love of Nature first had an opportunity of developing itself. Mother had no employment for us at home, and when there was no work there was no food, so she gave us all she could—*liberty*—sending us out of her way in the morning with a basket, with an injunction to bring it home again filled with fire-wood; then, with the bright summer day before us, we would set off for the fields round Leicester, and, if it kept fine, stay out until the evening. Very pleasant to look back upon are the hours I then spent in making the acquaintance of bird, and flower, and tree. We made necklaces of daisies, and trimmed our bonnets with wild roses and blackberry blossoms; and if we were hungry, we ate the tender shoots of the hawthorn and the honeyed petals of the red clover flower. I do not mean that we went entirely without food at this time, but as mother made it a rule never to run into debt, our supply was both scanty and uncertain, though few people guessed anything about it. 'Brightest things are fleetest,' so sings the poet, and so it turned out with me: the 'blessed time' did not last long. When I was eleven years of age, mother had the good fortune to get me into the warehouse where I am still employed; and now no more delightful wanderings, no more pleasant experience of the '*dolce far niente*'—henceforward it must be work, woman's work, dreary and monotonous sometimes, yet pleasant withal, as it rewarded me with the proud consciousness that I was not only able to eat my daily bread, but to earn it.

"I must now speak of the Sunday-school, where I was still a constant attendant, taking considerable interest in its lessons, and warmly attached to my teacher—a lady whose entire devotedness to her class I have never seen equalled. It was a red letter day in my calendar when our library was opened. I had always been fond of reading, and eagerly devoured every book that came in my way, especially stories of wild adventure and fairy tales; but my appetite was now to be ministered to by more wholesome fare, and I read delightedly some old volumes of the *Youth's Magazine*, with its charming essays by Jane Taylor.

"But better still was coming. I think I was about fourteen when a lady, now, alas! no more, lent me Milton's 'Paradise Lost,' which I had long desired to see. The reading of it was to me the opening up of a mine of rich treasure; it was the discovery of a new world—a world of beauty and brightness of which I had before no idea.

"I should have remarked that about a year previous to this, through some influences which I need not speak of here, there had come over me a great change—that which my dear minister would call 'an awakening of the entire consciousness.' I had become thoughtful, and anxious to be at one with the good Father above. It would seem as if heart, and mind, and soul were aroused all at once, and all things in earth and sky wore a new aspect, and spoke to me with a new voice. When I read Milton's matchless poem my whole soul responded to its unearthly music. I was enraptured, and could scarcely sleep at night for the echoes of its wondrous melody. Thenceforward I lived in a world of my own, illumined by a 'light that never was on sea or shore.' Life was never to be joyless again—

'For I on honey dew had fed,
And drunk the milk of paradise.'

"Shortly after this I essayed to write verses, and after several attempts ventured to send a piece to a local magazine, where it was inserted, to my great joy, with an approving notice by the editor. Since then the exercise of this faculty has afforded me the purest enjoyment. The course of my life has been monotonous, and would, perchance, have been wearisome, but for the flowers of poesy springing up by the wayside. Thrown by circumstances among uncongenial fellowships, it has been through the medium of books alone, and especially of books of poetry, that I have been able to cultivate the society of the wise and good, of the learned and refined. Shut out from the circle of taste and intellect by my lowly position, I am fain to think that I have enjoyed more than an equivalent, in communing through their writings with the star-bright children of literature and song."

Noble words these. They reflect a brave and earnest nature, one determined to make the best of its fate; not whimpering its doleful tale of sorrow, or muttering its fierce jealousies of those better off than itself; but rearing itself upwards to the heroic dignity of those true English men and women whose lives have taught us that there is no position so obscure or rank so lowly, but it can be illumined by the radiant brilliance of faith, hope, and love. Ruth Wills has a future lying before her—a future of which many in more exalted, but not more useful spheres, might well be proud. It will be her fate to teach the daughters of industry what they *might* be, without any sacrifice of their usefulness or their womanly nature. In fulfilling this mission, Miss Wills will need all the kindly sympathy and encouragement which we can give, and there will be few hearts so cold, apathetic, or careless, as to refuse their little meed of assistance in aiding the onward progress of one of whom England's daughters should feel proud, both for her literary abilities and the instructive story of her life—a life which has not been without a purpose.

The Paris *Moniteur* contains a decree by which a prize of 50,000f. is allotted, within the next five years, to the person who will discover a system by which the voltaic battery can be applied with economy to heating or lighting purposes, to the advancement of chemistry, manufactures, machinery, or medical science.

Greenwich Time and the Factories.—Mr. Baker, inspector of factories, urges the necessity of adopting Greenwich time all over the country. He says: "The value of such an arrangement, not only to the working classes, but also for all purposes, both public and private, I need scarcely attempt to point out. In England, even in small towns, the difference in clocks is often a source of the utmost annoyance. In large towns, in which there are several railway stations, it not only often causes a great loss, but a great inconvenience. In Belfast, the passer-by sees public clocks showing English time and Irish time together, the one being twenty-five minutes behind the other; and, no doubt, it is the case, also, in other parts of the kingdom. To the working classes, everywhere, this want of universal time cannot fail to interfere, not only with their hours of labour, but with their domestic comfort. By the Factory Act, all works under the law are to be regulated by a public clock, to be approved by an inspector. But since railway-station clocks have become so common, public clocks, heretofore so called, have been allowed to become extremely irregular; and there is hardly a passenger who would trust for his time to a church clock, for example, or to anything but railway time, for the best of all reasons, that he might lose his his journey and his money, if he did. But it is doubtful in law whether railway clocks are public clocks, and we have been defeated in an attempt to make them so. A public clock in every town of any size, fitted up by the local authorities, and supplied with regular time by a national telegram, would not only be the focus of time for all the surrounding country, but of all the clocks and watches in the town itself; and perhaps there could be no national expenditure which would be so productive of national economy."

A Year in the Working Woman's College.

The establishment of the Working Woman's College was a great and difficult experiment, both on account of its novelty and the amount of working-woman apathy which had to be encountered. Before the opening of the College, the promoters had no power of judging how many would avail themselves of the opportunities afforded them; but the experience of the first term did much to prove that there existed a real need of the means of education among working women. The College was opened in October, 1864, and between that time and Christmas, 150 students entered the institution, the total number entering during the year being 231. The occupations of the students were as follows:—Assistants in shops, 35; artists, monogram and flower painters, 9; barmaids and housekeeper, 4; bookfolders, toothbrush drawer, 8; burnishers and jewel-case liner, 6; corrector of the press and telegraphic clerk, 2; dressmakers and milliners, 36; domestic servants, 6; feather-makers, cap-front and straw-makers, 5; ironer and blind-maker, 2; machinists, embroiderers, and braiders, 10; photograph mounters and watchmaker, 7; secretaries and bookkeeper, 3; students (medical), 2; teachers, 54; waistcoat-makers, upholsterers, and needlewomen, 12; "at home,"* 119.

As to the time during which the students remain in College, no report has yet been made; but it is found that many come to the College for a short time, and then pass out again. This influx and efflux of students forms the great difficulty of the promoters, who state that there are many reasons for it. The College work of the students is to them the recreation, not (as with women-students in other classes) the business of their lives. They can come to the College only while the employments upon which they depend for subsistence permit them to come; the necessity of going where work is to be had—to parts of the town, miles away, it may happen, from Queen Square; the frequent change of employers, and therefore of places of abode; the lateness and irregularity of the hours of work in most trades, are fruitful reasons why the students must often give up the luxury of learning. Then, again, the household duties which are necessarily demanded from women, in addition to their industrial work—the mending, the cleaning, the tending of aged parents, the nursing of sick people—these things draw very largely and constantly upon the time and strength of working women, and when any pressure comes the College work is almost inevitably the first to be given up. Those, we believe, who value the College the most, and like their studies the best, are the least likely to neglect for them more pressing and difficult duties. Knowing all this, and feeling strongly how many peculiar obstacles, over and above the ordinary difficulties of study, the students have to brave in steady application to their work, one cannot wonder that many, not so earnest to learn, should be daunted by difficulties, and diverted from their intention to improve themselves by unfavourable circumstances.

Respecting the capabilities of the students, the reports of the teachers are highly satisfactory. In the English grammar class, Miss Ellen Drewry says:—"Want of accuracy, traceable generally to want of cultivation, is the chief difficulty to be contended with. As to the general spirit in which they work, nothing could be better; they are attentive, very grateful, pleasant in receiving correction, and evidently desirous to answer to the best of their abilities all my demands." The subject of social economy attracted but a small attention during the year, and the promoters express themselves sorry that the importance of the subjects which this class deals with should be so little understood. The value of physiology, on the other hand, seems to be so thoroughly recognised by women, that it has always attracted excellent and most interested classes, both when taught by Dr. Chapman and now, when Miss Garrett has come forward, at the first moment of her own success, to teach the students. The preparatory classes have answered the original

* The students described as "at home," are, in many cases, young girls whose occupation has not yet been determined; in others, women who assist in the trades of their fathers or husbands, or who, by helping in the housework of the family, save the employment of servants.

intention well. It has been very touching to see how pupils of every age—young girls, and married women—have endeavoured in the reading and writing classes to make up for the deficiencies of years, and have fulfilled their ambition, in many cases, by passing into the classes of the College to go on with what they have so well begun.

It remains to be proved what intellectual results the College will be able to show in the coming future. The promoters intend in a short time to put before their students a systematic scheme of study and examination; but in the meanwhile they are encouraged and gladdened in their labour by feeling that they are doing something towards giving many women, who have long desired it, the instruction they could not get elsewhere.

The social side of the College work has given still greater encouragement. Though little has yet been done in this way, the value of that little is already most evident. The College coffee-room, the conversational meetings, and the occasional larger gatherings, have made the place a centre of bright, cheerful, social life, where thought is stimulated and education is helped in many ways besides that of intellectual training. Already it would be hard to say what the College is to many, both teachers as well as students. A place where solitary women have found friends, where some, saddened by toil and privation, have learned to see that life has another and a brighter side! A place that is good to enter, because in its atmosphere of happy work and large human interests, small and selfish cares are forgotten! A place, too, that makes the teachers constantly feel that, what those who are struggling with the trials and toil of working people's lives crave, with a noble instinct, is help to live worthily!

Facts and Memoranda.

A cube of sandstone of 3 in. becomes crushed with a weight of 8 tons 4 cwt. 1 qr. 9 lb. In all cases sandstone gives way suddenly under pressure. Limestone is more than three times as strong, and gives way gradually by cracking and splintering. Good bricks laid in cement stand about 33 tons per square foot, equal to a column of such brickwork more than 500ft. high.

Art at Lyons. — The population of Lyons is thoroughly impressed with the immense importance of the cultivation of art in the interest of trade. The superiority of the Lyons designs, as well as of the artistic execution of those designs, has long been admitted; and the manufacturers and residents of the town and neighbourhood are indefatigable in their endeavours to maintain the reputation of the town unimpaired. The annual exhibition of works of art is the most important, after that of Paris, in all France. The Artistic Society of the town, besides establishing and maintaining the annual exhibition, has set on foot competitions in historical painting, the painting of flowers, drawing, the composition of ornament, engraving, and lithography. Towards the cost of these competitions, which occur after each annual exhibition, the Emperor contributes a donation of 1,000 francs; every step made in advance by the Lyonese artists being an important fact as regards the country at large. It is only by such means as this that pre-eminence in artistic manufactures is to be attained or kept.

Damp Walls.—The following recipe has been recommended by a Newcastle firm for curing damp walls:—Remove the whole of the damp plaster down to the surface of brick or stone walls, rake out the joints, clean and well wet the surface; lay on a coat of good Portland cement, mixed with one-sixth sand; be careful to cover every part of the brick or stone, broom or otherwise roughen the surface of the cement while soft; let this stand a few days, to get a hard skin on it, then replaster in the usual way. It will not do well to finish the inside surface with Portland cement, as condensations will take place on the surface in damp weather. If speed in execution be desired, the surface may be finished with plaster of Paris, Keene's, Parian, or Martin's cement, with the usual proportion of sand.

The School.—The people who possess the best schools is the first among nations; or, if it be not so today, it will be to-morrow. Intellectual wealth is, next to virtue, the chief good, and it is the source of all other good; even in an economic point of view, it is the most productive wealth. The total wealth must necessarily increase in proportion as it is produced by the most skilful workmen. In different factories there have been placed in two separate workshops an equal number of uneducated workmen, and those possessing a knowledge of reading, writing, arithmetic, and drawing, &c. Experience has always proved (and how could it be otherwise?) that the work performed by the ignorant workmen was much inferior to that of the others.—*Jules Simon.*

Things Talked About.

Mr. Mill has revived the consideration of a subject which has been frequently discussed—the probable duration of the coal supply of Britain, and the effect of its diminution, or cessation, indeed, upon the commercial greatness of the country. The philosophical member for Westminster has achieved an intellectual victory in inducing the House of Commons seriously to entertain the principle that legislation should have regard to the future as well as to the present. It must be owned that we are too prone to enjoy at once all the advantages of our prosperity, and make no provision for the rainy day that may come. If we do not quite echo the famous saying of the Hibernian senator—"Why should we do anything for posterity? Posterity has never done anything for us"—we have, at any rate, acted very much in that spirit. So, when Mr. Mill argues that a present surplus of revenue should be applied to lessening the debt we leave to our successors, who will probably have to endure a "coal famine," we recognise the largeness of his views, although we may not be able to share his apprehensions. There is a wonderful principle of compensation at work in the government of the world. Old states have died out, but new ones have sprung up; the fertile plains which have given place to barren wastes have been succeeded by "fresh fields and pastures new." And in this special matter of coal, it should be remembered that the British coal-fields form but a fraction of the area of the coal districts of the world; that, at present, we export vast quantities to countries actually richer than our own in the mineral; and that imperfect machinery adds a great waste to the loss entailed by improvident domestic consumption. As the coal-fields of America, Australia, and other places are brought into work, our demand on home resources will be lessened; and it is quite within the scope of commercial vision that we may be able to import coals as profitably as we now do corn, the supply of which we were once told must not depend on foreign sources, under penalty of something like national extinction. At present our export of coal is very large, no less than 1,870,818 tons in the quarter ending March last.

The subject is worthy of the bestowal of a little more space than we usually afford in this column to one subject. We are told, on good authority, that nearly nine-tenths of the coal consumed by engines is absolutely wasted, as far as mechanical power is concerned; that the waste in domestic culinary processes is "enormous." Surely, science will ere long at least ameliorate this evil. And, indeed, a considerable step has been made in that direction. A monster locomotive, the *Colossus*, has just been brought into use on the London and South-Western Railway, which will draw eighty loaded wagons—altogether a weight of nearly 1,000 tons—and only consume fuel at the rate of 28 lb. per mile. The ordinary consumption for goods engines not half so powerful as the *Colossus* is 50 lb. per mile. Now, for the means of supply when our own are exhausted. The coal area of Great Britain and Ireland occupy about 12,000 square miles; but the very lowest estimate of the area of the coal-fields of the United States is 20,000 square miles; but another estimate, by a very careful statist, makes it actually over 133,000 square miles! British America is known to possess 18,000 square miles (more than half as much again as the mother country) of coal formation; and then we have Australia and New Zealand, not very rich, perhaps, but telling for something. The American fields (the United States and the British provinces together) will yield, it is calculated—taking a very moderate average thickness of seam—something like four millions of millions tons of coal. So, it may be many thousands of years yet before our furnaces are extinguished for want of coal, or the English workman be puzzled for the wherewithal to boil his pot. Indeed, some of the coal-owners of South Wales are already declaring that they have in their mines an almost illimitable supply. In the meanwhile, new motive powers may be discovered which will supersede the use of coal and engines altogether.

Mr. Halcro, of Sunderland, writes to the newspapers on the subject of "The wealth of our working men," and gives fresh evidence of the fallacy of taking savings banks deposits as the sole gauge of the prevalence of provident habits among the working classes. Speaking of his own town, he says:—"The subscribed capital to building societies in Sunderland is £2,000,000 sterling, and is being paid at the rate of £300,000 annually. The number of members is 20,000, but as about 8,000 are located in neighbouring small towns and villages, only 12,000 are residents. After deducting 2,000 to 3,000 belonging to the middle classes, we still have 9,000 to 10,000 working men in the midst of us to be reckoned among the temperate, the industrious, and the provident."

It would be well if some of those persons—members of Parliament, or otherwise—who fear that to extend the franchise to a larger number of the working classes would be only to submit it to a violent and unscrupulous mob, and so render fair, honest electioneering impossible—were to watch the proceedings at the elections to Trade Pension Societies, Orphan Asylums, and other institutions, especially the property of the working classes. Zealous labour on behalf of chosen candidates is accompanied with a spirit of fair play and love of order, and a forbearing and tolerant spirit which might well be emulated by many who shrink from admitting the working man to a share, however remote, in the government of the country.

The Co-operative Societies of the North are vigorously protesting against the exclusiveness of the savings bank clause, and claiming the extension of the principle so as to include all enrolled and registered societies. Mr. Akroyd, the member for Halifax, and Sir Francis Crossley, representative of the West Riding, have undertaken to champion the cause.

It is terrible to think that some manufacturing processes are fatal to those employed in them. Scientific men would render the greatest service if they could point out some means of counteracting the effects of the poison to which the workers—in lead factories, for instance—are exposed. But, in the meantime, the persons employed may do much for themselves. Personal cleanliness, temperance, attention to health generally, will, if they do not quite nullify the injurious action of the poison, at least greatly mitigate it, and deprive it of the greater part of its mortal terrors. A woman employed at a lead factory died a few days since, of lead-poisoning. There was no doubt, at least, that the action of the metal was the immediate cause of death; but she drank hard, and, as a consequence, was unable to eat a sufficient quantity of wholesome food. The verdict was—"Death from lead-poisoning, accelerated by drinking ardent spirits and want of food." No scientific discoveries, no legislative enactments, ever can do much for working people if they will not be temperate and cleanly. That is a law of nature which is invariable.

The short-time movement is not so popular in America as in this country. The commission upon the labour question have made their report to the Legislature of Massachusetts. They oppose the adoption of an eight hour law for these reasons: "1. Because they deem it unsound in principle to apply one measure of time to all kinds of labour. 2. Because, if adopted as a general law, in the way proposed, it would be rendered void by special contracts, and so add another to the dead laws that cumber the statutes. 3. Because a very large proportion of the industrial interests of the country could not observe it. 4. Because, if restricted, as some propose, to the *employés* of the State, it would be manifestly partial, and therefore unjust."

The Committee of Management of the Peel Park Museum, at Manchester, are determined to possess a novel and interesting portrait gallery of living celebrities, which in the lapse of time may grow into the importance of a national historical treasure. It is now intended to form a gallery of photographic portraits, of uniform style and size, about 8in. by 6in., to be taken from the life in the first instance, and printed by an important process, invented and patented by Mr. Swan, of Newcastle, which is claimed to have made photography as permanent and indelible as a printed engraving. We hope that care will be exhibited in the selection of portraits, so as to represent the real active intellect and patriotism of our time.

Mr. Gerald Massey, whose portrait we recently presented to our readers, has set himself to solve the vexed problem of the true meaning of Shakespeare's mysterious sonnets. It will be an enduring honour to the working classes if one of the number, who has strengthened his intellect and ripened his perceptions in a fierce struggle with the impediments which crowd the way to "the steep where Fame's proud temple shines afar," should be the first to interpret rightly the utterances of the greatest of all poets, himself sprung from the ranks.

We have before us an interesting little work, a "Report of the Social Organisation of the Saracen Foundry (Glasgow) for 1865." It includes the proceedings of the Mutual Improvement Society, description of the annual excursion, a *soirée*, concert, and assembly, and an exhibition of the industry of the persons employed in their leisure hours. Nearly 800 persons are engaged in the foundry; and they seem to have made good use of the opportunities afforded them by the liberality and encouragement of Messrs. W. Macfarlane and Co., the heads of the establishment. The exhibition of works of industry included models of machinery, furniture, figure-modelling, and, on the part of the females, of needlework, knitting, &c. Drawings, original compositions in prose and verse, and handwriting were also exhibited, and prizes were awarded in all the classes. The literary efforts, in which the females took their full share of honour, are creditable in every respect.

The sooner Benefit Societies and Lodges are removed from public-houses the better for the members. That, we believe, is generally regarded as a truism; but, like many other truisms, it is more frequently uttered than acted on. We are glad, therefore, to see that the Foresters of Paddington have resolved to purchase Portman Hall, a commodious place for their meetings, and quite free from temptations to drink.

Lord Elcho is at issue with the Reform League. A year ago he delivered a speech on Reform, in which, as reported, he said that "an extension of the franchise would let in a mass of men who were improvident and indolent." This report Lord Elcho now corrects, saying that the words he used were, "improvident and igno-

rant. The correction does not much mend his position; and working men are disposed to consider one epithet as great a compliment as the other.

We cannot conceal from ourselves that the extensive trade organisations among working men, the frequency of strikes, and the frequent violence of over-zealous partisans of trade rights, have created a spirit of animosity on the part of many men of political influence, which prevents them giving fair consideration to the political claims of the working classes. Very conspicuous was this feeling in the brilliant speech of Mr. Lowe. He seized adroitly on a few threatening letters, a few intolerant actions, and forgot the abundant evidence of intelligence, providence, and political moderation on the other side of the argument.

It is unfortunate indeed—for it places weapons in the hands of those only too happy to use them—that just now, when a claim is made for a larger share for the working man in the government of the country, strikes should be so prevalent. That consideration is quite apart from the reasonableness or otherwise of the strikes. But it is a fact, and the manufacturing interest makes the most of it, that demands for advance of wages and reduction of hours of labour, are just now being pressed with unusual pertinacity. The carpenters and joiners have refused the offer of the master builders, insist upon eightpence an hour as the standard wages, irrespective of the skill of the men, and a uniform day of nine hours, both in shop and out-door work; the journeymen tailors of Greenwich, Deptford, and Blackheath, have struck for an advance of wages; so, too, have the London wireworkers, and the seamen and foremen connected with the steam-ship service of Hull; the masons, labourers, and tailors of Durham are out on strike, the masons, and joiners having recently obtained an advance of two shillings a week; and the introduction of German tailors into Edinburgh has fomented the discord which, we fear, is not likely soon to be lessened. Some of the Yorkshire gardeners have struck for an advance of wages and reduction of hours of labour; so have the farm labourers of Newbury; and even the washerwomen and monthly nurses of Padiham, near Blackburn, have announced that in future they must have better pay for their services. The saddlers and harness-makers of Glasgow, we see, have held meetings, and ask a rise equivalent to 15 per cent., and a turn-out is threatened.

We are glad to be able to announce the close of the Sheffield file-makers' strike, after a duration of nine weeks. The terms are, that the men withdraw all opposition to machinery, and that a joint committee of masters and men enter fully into the question of wages, to see what advances the condition of the trade will admit of. They are to report on this matter in three months, and meanwhile work is to be resumed on the old terms.

The Liverpool town council have refused to instruct the Improvement Committee to report on the subject of sites for improved dwellings for the working classes. We are sorry to hear it. Liverpool is rich enough to take the lead in a good work.

On this subject Mr. Lowe gave utterance to a phrase which will not soon be forgotten. He said, in reference to the picture of working men drawn by Mr. T. Hughes—"they insist that the money of their fellow taxpayers ought to be spent in building them houses to live in, because, forsooth, it is not fitting for them to pay sufficient out of their own earnings for the purpose." Working men insist on nothing of the kind. They are driven from their homes by the schemes of capitalists, and, if weekly tenants, have no sort of compensation. What they ask is that capital shall be furnished to provide new and wholesome homes, for which they are perfectly willing to pay a remunerative rent. Working men cannot raise stacks of buildings for themselves; but they can and will do what capitalists themselves do—pay a good interest for money advanced to provide for their requirements.

Co-operative Intelligence.

Tanfield District Industrial Provident Society.—At the twentieth quarterly meeting of the above society, after deducting working expenses, interest, and a good reduction of fixed stock, a dividend of 2s. in the pound on members' purchases was declared.

Ashton-under-Lyne.—At the recent quarterly meeting of the Co-operative Society here, the secretary read the thirty-sixth quarterly report, from which we extract the following observations and figures:—"The total receipts for the quarter over the counters have been £1,693 18s. 11½d., which gives a weekly average of over £130 6s., and shows an increase of £158 7s. 6½d. over those of the preceding quarter. By contributions, £140 19s. 1d., being greater by £46 8s. 4d. than the amount received in the previous three months. The amount withdrawn has greatly exceeded that of last quarter, yet the capital of the society remains unimpaired, it being greater by £69 8s. than it was in December last. Forty-five new members have been enrolled, while only three have withdrawn, from change of residence, making a net increase of forty-two members. The reserve fund has advanced £5 2s. 9d. A banking account has been opened, and £300 has already been deposited therein, which will give the committee a considerable advantage of any sudden change in the markets."

East London Co-operative Provident and Industrial Society (Limited), 2, Ocean Street, Bull Lane, Stepney.—From the twenty-fourth quarterly report, ending March 27th, 1866, we learn that the total cash received for goods was £513 7s. 3¾d.; the gross profit, £52 15s. 10¼d.; expenses, £24 9s. 9d., or 11¼d. in the pound on the goods, leaving a balance disposable of £30 12s. 9½d., which sum, after paying the various items to fixed stock, interest on shares, &c., enables the committee to declare a dividend of 1s. in the pound.

Saddleworth Industrial and Benevolent Co-operative Society.—At the thirty-seventh quarterly meeting, the secretary read the report, which shows that the society is in a very healthy and flourishing condition. The total amount of receipts during the quarter is £2,001 9s., being an increase of £588 16s. 5½d. over the corresponding quarter of last year. Amount of assets, £3,339 5s. 4½d.; amount of liabilities, including depreciation of fixed stock, £3,123 12s. 2d., leaving a clear profit of £215 13s. 2½d., which enabled the committee to declare a dividend of 2s. 3d. in the pound on the members' purchase-money. The amount of share capital credited to the society is £3,033 1s. 7d., being an increase during the quarter of £423 4s. 8d. The amount of cash in hand and in the bank is £1,218 2s. 8½d.

Darwen.—Quarterly Meeting of the Industrial Co-operative Society.—At the twenty-first quarterly meeting of the Over Darwen Industrial Co-operative Society, held in the United Methodist school-room, the secretary read the report, which went to show that the society was steadily increasing in numbers, also prosperous in its finances. The sales at the centre and branch stores during the past quarter amounted to £8,516 3s. 11½d., being an increase of £373 4s. 11d. on the previous quarter. The profits made by the same were £738 7s. 3d., which, after depreciating fixed stock and buildings to the amount of £27 1s. 7d., paying interest on capital at £5 per cent., with other incidental expenses, £25 10s. 8d. also added to the reserve fund, a dividend of 1s. 8d. in the pound was declared on members' purchases, and a bonus of £15 0s. 0½d. amongst the non-members. During the past quarter the contributions have been £1,419 6s.; the withdrawals, £353, 17s. 8d.; thereby showing an increase to the amount of £1,065 8s. 4d. The increase of members during the quarter is 92, the present number being 962, with claims as per ledger of £7,686 7s. 6d.

General Information.

CLUBS AND INSTITUTES.

Leicester.—The club here opened on Easter Monday, April 2nd, with upwards of 350 members, who have taken out their cards and paid their subscriptions. The committee have expended the donations for fitting up the premises as economically as possible, compatible with the convenience, comfort, and entertainment of the members; many things are left undone until the funds warrant the committee in expending the necessary moneys. About £100 has been given in donations, and the committee would be glad to raise about £40 additional to carry out their intentions. The next important thing is to cover in the skittle-alley, and light it up in the evening, and provide a few more tables for chess and draughts.

Workmen's Clubs and Institute Union.—The second social meeting held under the auspices of this society took place on the 25th instant in the lower room of Exeter Hall, Lord Lyttelton presiding. The question for the evening was the reduction of the franchise, and in opening the discussion his lordship briefly adverted to the Government measure, but he declined to say whether he would support it or not, supposing it should ever reach the House of Lords. He could only say, "Time will show." Mr. Cyrus Symons, a working man, delivered an address, contending that a large extension of the franchise would promote the well-being of all classes of the community. He approved of fixing the limit at £7, and said one good effect he anticipated from giving working men a chance of getting into Parliament would be the example of brevity they would set in their speeches. There had already been too much talk on this question, and the debates generally required shortening. In the discussion which ensued, the Government Bill was generally accepted, and it was urged that the only remedy for corruption was the ballot. Mr. George Brook, of the Reform League, one of the speakers, assured Lord Elcho, who sat in the body of the meeting, that his explanation at St. Martin's Hall had given much satisfaction to the working classes. Another speaker hoped the end of the week would see Mr. Gladstone's measure passed with a "crashing" majority, and that the House of Lords would follow suit. The noble chairman, in reply to this remark, said he thought if the Bill came up with a "crashing" majority their lordships would think twice before they threw it out; but if it did not it would be another matter. Lord Elcho, responding to an appeal made to him, said he was a subscriber to the institution, believing that it would be the means of doing a great deal of good; and he had attended in the hope of learning the views of the working class upon this question, which, it was said, were not understood in the House of Commons. He had listened with the utmost attention to what had been said, and, with the exception of the argument that the franchise was to be an educational instrument, he had heard nothing to support the proposition which had been advanced. It had been argued that, by lowering the franchise, the man was to be raised; but his view of the matter was, that it was most desirable the man should be induced to work himself up to the franchise. The debate terminated with a vote of thanks to the noble chairman, who was accompanied by his relative, the Earl of Lichfield. A vote of thanks to the chairman was also proposed by the Earl of Lichfield, seconded by Mr. Solly, and carried unanimously.

Radstock Working Men's Hall and Institute.—The ceremony of laying the foundation-stone of this building was performed on Tuesday, the 24th ult., by George C. Greenwell, Esq., C.E., F.G.S., formerly manager of the extensive collieries at Radstock, Somerset, belonging to the Countess Waldegrave. The day was beautifully fine, and a large concourse of people assembled on the occasion. The proceedings commenced by singing a hymn, after which the Rev. R. Elmore, at present acting for the incumbent of Radstock, offered a prayer. One of the oldest and most respected workmen in the collieries then addressed the people, expressing the pleasure the working men of Radstock felt in the prospect of having such a building for their use, and in welcoming their old manager once more among them to officiate as head bricklayer. He concluded an able and energetic address by presenting Mr. Greenwell with a beautiful silver trowel, purchased by the colliers, and on which was engraved a gratifying inscription, showing how, in the course of his nine years' management of the works, Mr. Greenwell had won the confidence and affection of the men under him. That gentleman then returned hearty thanks, and wished them much benefit and happiness from the proposed Hall and Institute. The Rev. H. Solly, of London, then delivered a short address, and the meeting separated. At five o'clock, a crowded tea-meeting was held in the National School-room, at which Mr. Elmore presided, and addresses were delivered by that gentleman, the Rev. H. Solly, and the Rev. Mr. Gale, incumbent of Foskett. Cordial votes of thanks to the chairman and Mr. Solly were moved by J. McMurtrie, Esq., present manager of the collieries, and carried amid acclamation. Mr. McMurtrie is earnestly helping on this good work, and bids fair to be as useful and popular among the honest subterranean workers of Radstock as his predecessor. It is a good sign of the times when relations of this kind are established between employers and employed. Another interesting fact connected with this undertaking is that many of the men themselves are contributing comparatively large sums out of their wages towards the erection of the Hall, and those who can, are giving help in labour. A donation from Mr. Greenwell of £20 was announced in the course of the evening. The Countess Waldegrave and her husband, the Right Hon. Chichester Fortescue, M.P., have each contributed £100 towards the erection of the building.

District Union of Metropolitan Working Men's Clubs and Institutes.—The conference announced in our last number to take place between representatives of the London clubs and members of the council of the Parent Society was held on Thursday evening, at the office of the latter, 150, Strand, when about twenty persons, including members of the following clubs, were present:—Camden Town, Chelsea, Child's Hill, Clerkenwell, Hampstead, Hackney, Paddington, Southwark, Shoreditch, St. Bride's, and St. James and Soho. A. H. Layard, Esq., M.P., occupied the chair, and after a full discussion it was unanimously resolved, on the motion of Hodgson Pratt, Esq., seconded by Mr. Wyeth—that it is desirable that a District Union of Working Men's Clubs and Institutes within the metropolitan districts should be formed on the plan recommended by Mr. Solly, Mr. Bainbridge, and Mr. Pocklington. Mr. Layard warmly supported the proposed organisation, which, he thought, would be productive of great benefits in various ways. A full account of the plans proposed will at once be printed and sent to the various London clubs. It was agreed to convene a second meeting of representatives of these clubs, and then to lay before them the proposed constitution, objects, and rules of the District Union for final consideration and adoption. This meeting is to be held on Tuesday, May 14th, at the office of the Union; tea at seven p.m., and business to commence at eight, when it is hoped that Mr. Layard will again be able to preside. A cordial vote of thanks to that gentleman, as chairman, concluded the discussion. Great help, it was unanimously agreed, may be seasonably rendered by Working Men's Clubs to one another, and much mutual benefit experienced, by co-operating for entertainments, exhibitions, lectures, discussions, excursions, matches of various kinds, interchange of privileges of membership, circulating libraries, and so forth. It is sincerely to be hoped that these good results may be secured, not only by a union of London clubs, but by similar District Unions throughout the country.

Correspondence.

*** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE CASE OF RAILWAY WORKMEN.

To the Editor of the Working Man.

Sir,—As your columns seem open to suggestions for the benefit of working men, not only from themselves, but also from others who may mix among them and be aware of matters affecting their interests, I beg to trouble you with some inquiries relative to the condition of railway workmen.

Travelling a good deal about, I often hear complaints from railway porters and platelayers as to the great duration of their hours of labour, and the moderate wages they receive. What are the actual facts of the case? What have these workmen themselves to say? Would they write to you letters which might be published, either affixing their own name or sending to you privately their names and addresses, as a guarantee of good faith, explaining what their actual condition is, that the public may judge whether their complaints, or such as are made on their behalf, are well founded? If there be a grievance, they should know it; and if it is to have redress, they must tell it. As I observe that the Working Man reaches this class of persons, this notice of interest as to their social and industrial position might elicit some facts upon which an opinion can be formed. I observe that when an inquiry was lately made on behalf of letter-carriers, as to whether their wages should not be increased, the curious answer given was that there was competition for their places, and therefore there was no need to increase their wages, however otherwise well deserved. In the public service the object ought to be to command good services, and to pay such a rate of remuneration as will enable that service to be given—viz., prices to ensure it.

The case of railway labourers, porters, platelayers, and others seems yet stronger. The postman has our property in his hand; the railway workmen have our lives. Inadvertence, incapacity, or fatigue from over-work may lead, as it often has led, to a frightful catastrophe, which no award of juries can undo. It might be a matter of economy, as well as humanity, to command vigilant services, by shorter hours of duty or higher wages. Perhaps we shall learn how the matter stands from the parties themselves more immediately concerned, if you deem this letter of sufficient interest to insert.—I am, Sir, A Travellee.

Rugby, April 25, 1865.

[Some time ago we directed inquiries to be made upon this very subject, and we expect to have some special facts to lay before our readers. In the meantime, the suggestion of our correspondent may prove a useful auxiliary; and we shall be glad to record any results which may be communicated to us.—Ed. W. M.]

MR. CLAY'S EDUCATIONAL FRANCHISE BILL.

To the Editor of the Working Man.

Sir,—As I have been a reader of your new publication since its commencement, and I have read the correspondence which has been inserted from time to time in your columns on Mr. Clay's Educational Franchise Bill, and if I am not too late, I should like to state very briefly my opinions on the same subject. I am of opinion that the educational test as proposed by Mr. Clay is far preferable to the present system, which requires a £10 household qualification; but I think for Mr. Clay's Bill to have recommended itself to the great body of the people, it ought to have been prepared as a substitute for the present system, and not merely as an addition to it. I cannot, as has already been expressed by other of your correspondents, see why working men, in order to obtain the possession of the franchise, should be compelled to become, to a certain extent, intellectual, while others, because they are possessed of a few bricks and mortar, should be entitled to vote, although they may be as ignorant as it is possible to be in a civilised country. I am a firm believer in one common qualification for *all* classes—namely, registered manhood suffrage. My own opinion is that every man, whether he comes up to Mr. Clay's standard or not, who is twenty-one years of age, and of sound mind, and unconvicted of any crime against the laws of the country, and can show that he has resided in any given place the preceding six months, is—or, at least, ought to be—entitled to be put on the register as a fit and proper person to vote for a member or members of Parliament; for I hold that every man who is called upon to obey the laws and to pay taxes (and who is there among the working classes who does not contribute to the support of the State?) ought to have a voice in making those laws, and in saying how those taxes shall be expended. I think it is very absurd to say that because a man does not pay an annual rent of £10, or has not £50 in the savings bank, or because he does not come up to Mr. Clay's test, he has no interest in the country. Every man has the interest of his own existence, and ought to have a voice indirectly, at least, to plead for it in the British House of Commons. Before I conclude allow me to say that, in my opinion, no Reform Bill can be satisfactory that does not protect the voter by the ballot. It is all very well in its way to say that working men *ought* to be independent, but it is not only *working* men who, under the present system, require protection, but thousands of small tradesmen as well. Therefore let the suffrage be of what kind it may, without the aid of the ballot it would be rather a curse than a blessing, for I am persuaded that at the present time it is often looked upon as such by its possessor. Trusting you will insert the above as the honest opinions of a working man, I beg to remain, yours, &c., W. Morley.

Old Basford, near Nottingham.

WORKMEN AND TRADE SOCIETIES.

To the Editor of the Working Man.

Sir,—I avail myself of the invitation you have given to working men's contributions on subjects which interest them. Such contributions may be of little value in a literary point of view, but they cannot fail to possess some of that value which is frequently above all others—namely, the practical experience of the writers.

The working man, candidly and intelligently depicted by his own hand, would be a very different being from that fanciful delineation which we sometimes have from platform orators. No doubt, when they clothe the working class with high intelligence and many virtues, they speak to the extent of their knowledge, and believe what they state; but they would be completely cured of their error if they could be prevailed upon to spend a few months among the workshops, and be obliged to mix with the society and mingle in the conversation they would find there. The high encomiums which these partial friends of the working class frequently bestow are well and worthily deserved by many individuals in every trade; but their number, compared with the whole, is as yet but a drop in the bucket—too few to have much influence, either in the workshops or Trades' Unions; though, owing to good and cheap literature, that number is daily increasing. It would be well, too, if these fanciful friends of the working class would descend to the sphere of the Trades' Union for a little while, and practically learn from the proceedings, the management, and the views expressed there, what is the actual character of the working class with reference to information, intelligence, and self-respect. Any observer who has failed to gain a thorough knowledge of life in the workshop and Trades' Union can never have a correct estimate of the doubtful principles, the mean, narrow views, and general ignorance which mark many of the operatives. It is unfair to judge of what is seen at Working Men's Colleges or Literary Institutes, for at these places the best of every trade are drawn together by a similarity of tastes and desires. If it be thought that these views are rather crabbed and capricious, an appeal to every autobiography that has been written by working men, from Benjamin Franklin to the present day, would set the matter at rest. It is true that drunkenness, and the more brutal habits and pastimes, have abated in late years: yet every thoughtful and candid workman will acknowledge that the workshop description of Hugh Miller, "One who has Whistled at the Plough," and the talented printer, who has written "The Working Men's Way in the World," are veritable transcripts, and, though slightly modified by circumstances, are recognisable every hour of the day.

It is to be expected that, whatever societies are organised by workmen for the furtherance of their interests, such societies will, in a great measure, reflect the moral and intellectual characteristics of the majority of those who compose them.

Trades' Unions have never had the approbation of public opinion, because, as a body, they have never done anything to deserve it. Some have had its reprobation for acts that can never be justified, while few have done much towards a realisation of their professed objects. But the most remarkable thing is, they remain a permanent institution among all classes of workmen. They are to be found as far back in the history of labour as the beginning of the sixteenth century; and, from the tenacity with which they are clung to, it is fair to infer they will exist as long as the present relation between capital and labour remains unchanged. They are not only a permanent institution, but they are, also, an unchanging one; for their objects, and the means to accomplish them, remain the same at the present day as they were 300 years ago. Now, ought this to be? Amidst all the great improvements in the sciences and the arts; amidst the great diffusion of intelligence and light everywhere around us, cannot one single ray penetrate the darkness and fructify into life the seed which is assuredly there? The Chinese-like immobility of the Trades' Unions is surprising. Their professed objects are to keep up the rate of wages and preserve the personal independence of the workman—objects in themselves perfectly legitimate; but they have made no adequate provision for carrying out these objects. Wages cannot be advanced or depressed at will: there is a law pervading this subject, which must be known and attended to before a right conclusion can be drawn. And how can it be expected that anything like a correct idea of the relationship of wages and profit, and of both to production, can exist, when the people judging of them are utterly ignorant of the first principles of economic science, and who labour under delusions so gross, that if the words "political economy" are but mentioned among them, they are received with alarm and derision, as if an enemy were about to be introduced into the camp. And if the object of personal independence is to be sustained, there are no better means of doing so than the individual showing by his conduct that he possesses straightforward and correct moral principles, rectitude in his business dealings, and self-respect throughout his whole bearing.

It follows, then, that an educative object, incorporated with the objects of a Trades' Society, becomes an imperative necessity if they are to be anything else than they have been—mere engines of vulgar force. Let us see what efforts and changes are necessary to effect the very simple but important reform of associating the advantages of a literary with those of a Trade Society.

The first thing to be done is to get out of the present places of meeting, the public-house; for the fact of associating public business with drinking and smoking will stifle in its birth any project of reform. There is no occasion for the members to become teetotalers to do this—no reasonable person would expect such a wholesale change of habits. All that is wanted is a practical acknowledgment that public business can never be efficiently done if associated with conviviality, for conviviality will always get the upper hand of business in the long run. Many of the questions that are continually coming before a Trade Society, if properly treated, require a knowledge of economical and other principles, and their application again requires concentrated attention; but it is out of place to expect either amid the brawling which is ever concurrent with the fumes of "the pot and the pipe."

To make a beginning, small societies might rent the floor of a private house as a place of meeting. Large ones require more convenience, the ways and means to obtain which would soon appear by an earnest and well-directed business effort; and all societies might have a few shares in a building society, and so, in course of time, have premises of their own. It may be said the public-house is advantageous as a place of meeting, because it is always free to the members without the payment of rent; but there lies the fallacy, for it stands to reason that the landlord cannot afford the use of his rooms except the profits of the spendings there are sufficiently remunerative to him; and if an account were kept of the sum spent to make that profit, it would be found a heavy rent indeed. If the place of meeting were removed to a private house, the attainment of every other object would be comparatively easy.

A library could be formed without much expense: the foundation of one might be laid by every member presenting a volume; and the best disposed among the employers would readily contribute in support of such an object. Classes and lectures at stated intervals would be within the pecuniary reach of most societies. And surely it is a consistent and necessary thing that an organisation of workmen for trade purposes should teach and endeavour to perfect its members in the principles of the art by which they gain their livelihood. Engineers, carpenters, and others must be more efficient, both in head and hands, when instructed in the principles of mechanics, geometry, and drawing. A knowledge of the elements of chemistry is serviceable in other trades; and so on with various sciences, through the whole range of handicraft. The working men would find that such elementary instruction, if anything like general, would also be a wages-raising principle; their tastes and self-respect would be raised, a higher and more refined standard of living would be desired; and the public opinion of the upper and middle classes would be conciliated in their favour. The usual complaint, that the really intelligent portion of the working class take no leading part in Trade Societies, would be obviated; for they would naturally take the foremost place among classes and books, and when information was wanted. But, as Trade Societies are at present constituted, they make no demand on any man for information or intelligence; hence, their affairs are frequently in the hands of drivellers or presumptuous brawlers, who have nothing to recommend them but their obtrusiveness and vulgar prejudices.

There are already a few Trade Societies organised with an educative principle, and many workmen in various trades have favourable opinions of such a movement, but they have not sufficient energy to step forward and take the initiative in the matter. Their hands, however, would be strengthened by a little extraneous aid in the shape of the advice and influence of some of those practical philanthropists who have organised Working Men's Colleges and Clubs. These institutions are doing, and will do, an amazing amount of good; but they cannot reach the great body of the workmen—they can but draw off the best and most tractable among them, leaving a gulf, as it were, between them and those who are not favoured with such a correct turn of mind. But if the affairs of a Literary Society were mixed up with a Trades' Society, all would feel an interest and be constrained to partake of the benefits. And there would be no fear of such societies coming to an end when the fostering hand of the philanthropist was removed, for it is as much in the nature of a Trade Society to be permanent as it is in a literary one to be wisdom-giving. P.

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George Peabody.

THERE was something exceedingly appropriate and graceful in the idea of inviting Mr. George Peabody to preside over the closing ceremony of the City of London Working Classes' Exhibition, for there are few men who have done more to gain the respect and esteem of the artisan classes than the man who has so nobly devoted such a princely portion of his fortune to the furtherance of a scheme having for its object the improvement of the homes of the people. The Peabody Model Buildings will ever remain a monument of the practical benevolence of their founder. Unlike many of those who have sought to ameliorate the condition of their poorer brethren, he was enabled to discriminate between real and false charity. He knew that the safest and most serviceable aid he could render to working men was not in treating them as paupers or suppliants for charity, but as men who, against heavy odds, were endeavouring to help themselves. The great difficulty with which the working classes of London have to contend in obtaining proper dwellings is the enormous value of land in the metropolis—a difficulty which, in some instances, is at present beyond the power of working class co-operation to surmount. This obstacle George Peabody determined, so far as in him lay, to remove, by providing a fund for the purchase of land and the erection of suitable dwellings thereon for use, at a moderate rental, by the working classes, who otherwise would have to content themselves with far inferior habitations at a much higher rental. This was really practical help, and of a self-supporting character too.

But George Peabody came of a practical race. The Pilgrim Fathers were men who dared to become voluntary exiles rather than renounce the opinions which they had learned to regard as true; and from these men of iron will and indomitable purpose, George Peabody has inherited much of that calm and persistent resolution which has enabled him to successfully carry out his intentions. Born at Danvers, in Massachusetts, he commenced his commercial life in the city of Baltimore, where every scope was afforded for the display of his shrewd and discerning powers. From an early period he commenced that career of magnificent liberality which has culminated in the splendid and almost regal gift to the poor of London. He made wealth, not to enrich himself, but to bestow it upon others.

In 1837, he left his native country—the land of the stars and stripes—and came to London, where he founded the great American banking firm known throughout the whole civilised world as Peabody and Co., and which for eight-and-thirty years has had a most profitable and flourishing business.

But, in his adopted country, Mr. Peabody did not forget the claims of his native land. During a visit to America, in 1852, he gave 100,000 dols. to found in the town wherein he was born an educational institute and library, "the results of which," he stated, "have proved most beneficial to the locality, and gratifying to myself." In 1857, he generously devoted no less than 500,000 dols. to the erection of an institution for the promotion of science and art in Baltimore, the city in which he commenced his commercial life. But his chief munificence was reserved for England—the country in which his fortune had been amassed, and of whose commercial fabric he was one of the principal ornaments. When the extent of his gifts were first made known to the people, they could scarcely resist being incredulous. Such princely presents are somewhat rare in the history of nations; and it is not every man who makes a fortune who thinks of bestowing it upon others. In this respect, George Peabody has furnished a brilliant precedent for future millionaires—less, however, in the magnificence of his gift than its practical character. If his intentions are faithfully carried out, great and appreciable changes will take place in the condition of the London poor. The Peabody buildings will form the leaven which will alter the whole mass of house accommodation in the metropolis. Working men will no longer be content to be slowly poisoned to death in pestilential, reeking abodes, while landlords will find it to their interest to provide their tenants with homes more fit for the use of human beings, and less deserving of that censure and reproach which so many of them have incurred. This is the peaceful revolution designed by the people's benefactor, George Peabody.

GEORGE PEABODY, ESQ.
(*From a Photograph by M. Claudet.*)

Well did the Queen, with her womanly instinct, gracefully interpret, in her kind-hearted and noble letter to Mr. Peabody, the universal sentiment of the country. It is by such recognition of the really great deeds of large-minded and unselfish men, that royalty manifests its true dignity, and gains for itself that national respect and love—that undying popularity — which is stronger far than fleets and armies, and which never fails a ruler in the hour of need.

In America, to which country Mr. Peabody has temporarily returned, the presence of the great benefactor will be hailed as that of one who has done much to cement the feelings of mutual good-will which ought always to subsist between the two principal branches of the Anglo-Saxon family. Englishmen will always honour America as being the birthplace of one who has shown such devotion to the claims and interests of the labouring classes, while in America the name of Peabody will be regarded as that of one who has caused the name of his country to be spoken of in tones of esteem and gratitude in the homes of the mother-land.

SOUTH KENSINGTON.—The art-schools at South Kensington have been better attended during last year than ever before; consequently, the receipts from students' fees have been proportionally increased. More than £2,000, being an increase of nearly £200 over the amount received last year, has been paid on this account. The actual results in respect to employment obtained by students who have been trained in these art-schools have been more than usually satisfactory during the official year 1865. Of the holders of national medallions, the following are designated as having obtained good and regular employment:—Mr. Gundry, at Northampton, as a designer for iron-work; Mr. Brophy; Mr. Fildes, with Mr. Thomas, wood-engraver; Mr. Harris, with M. Helbronner, Regent Street.

FRENCH LOCOMOTIVES.—"The manufacture of locomotives in France," says a Paris letter, "is daily increasing to a great extent. Our great manufacturer, Koechlin, gave, a few days back, a dinner to his workmen on the completion of his one thousandth locomotive."

*The Origin and Uses of Trade Guilds.**

In the long reign of Edward III. both commerce and the arts flourished with new vigour. The sagacious monarch saw the advantage of encouraging the various companies which were the mainstay of the trade of the kingdom. To all those of importance he gave charters for the exercise of their privileges, which before were only held on sufferance, or by payment of certain fees. The guilds were now more often termed *crafts*, or *mysteries;* and as they began to assume a distinctive dress or livery, they were also called livery companies.

But a still higher mark of favour was afterwards bestowed upon the trading societies by the king. In order to raise them in public estimation, he resolved himself to become a member of one of the fraternities. The Linen Armourers, now the Merchant Tailors, was the company selected for this honour. They were at that time the chief dealers in woollen cloth, which the king sought to make the staple manufacture of the kingdom. His example was followed by his courtiers, and it soon became fashionable to belong to one or other of these bodies. Besides the Merchant Tailors, the Skinners, the Mercers, and the Grocers were particularly selected for this distinction. None, however, was so highly honoured as the first-named society. Richard II. followed the example of his grandfather in joining its ranks, and there were, besides, on its lists four royal dukes, ten earls, ten barons, and five bishops.

These were flourishing days for the trading companies; but their powers appear at times to have led them into excess, and it was, even at this early period, often complained that the monopoly enjoyed by the various associations was prejudicial to the public interest. In the thirty-sixth year of Edward III. a petition was presented to the House of Commons, seeking to limit the monopoly of the Grocers. The reason why they bore this name appears from the wording of the petition. It states that "great mischief had newly arisen, as well to the king as to the great men and commons, from the merchants called *grossers*, who engrossed all manner of merchandise vendible, and who suddenly raised the price of such merchandise within the realm; putting to sale by covin, and by ordinances made amongst themselves in their own society, which they call the Fraternity and Guild of Merchants, such merchandises as were most dear, and keeping in store the others until times of dearth and scarcity." The petition went on to suggest that in future every merchant should be restricted to dealing in one class of merchandise only.

This suggestion was adopted in an Act of Parliament passed in the following year. The Act decreed, amongst other things, that "all artificers and people of mysteries shall each choose his own mystery before next Candlemas, and shall henceforth use no other." Infringement of the Act was to be punished by six months' imprisonment. Women artificers, who at this time were numerous, were exempted from its operation. In the following year the Act was repealed, so far as it related to the merchants, but its provisions as to the artificers remained in force. We read of several freemen of London losing their privileges for following trades to which they had not been brought up. Among these were "John Lynn and Nicholas Merchant, who, being haberdashers, occupied merceries; William Southbrook, weaver, for that he occupied drapery; Geofrey Presbury, for procuring the freedom of the Haberdashers for a mercer," &c.

The trading companies had so far increased in the fiftieth year of Edward III., that the number sending members to the Common Council of the City of London was raised from thirty-two to forty-eight. At this time, not only were the Common Council elected by members of the companies, but also the City's representatives in Parliament.

The oath administered to the wardens and other principal officers was to the following effect, the language being modernised here:—"Ye shall swear that ye shall well and truly oversee the craft whereof ye be chosen. And all the good rules and ordinances of the same craft ye shall keep, and do to be kept. And all the defaults that ye find in the same craft ye shall well and truly present to the Chamberlain of the City, sparing no man for favour, and grieving no person for hate. Extortion nor wrong under colour of your office ye shall not do; neither to anything against the State, peace, and profit of our sovereign lord the king, or to the city, shall ye consent. For the time that ye shall be in office, in all things that shall belong unto the same craft, after the laws and franchises of the said city, well and lawfully ye shall have you."

Henry IV. both confirmed and extended the privileges of the companies. He made them bodies corporate with perpetual succession and a common seal, and gave them powers to have and to hold lands purchased or bequeathed. Husbandry in this reign was neglected for trade, until it became necessary to enact that artificers and "people of mysteries" should be compelled to serve in harvest, by cutting, gathering, or bringing home the corn.

In the reign of Henry V., an important change was introduced, at the king's suggestion, in the records of the companies' proceedings. Up to that time the language used for this and other public purposes was chiefly the old Norman French, with a mixture of Latin; but the common tongue of the people was now generally adopted.

The trading companies figure prominently in the State pageants of this period. When the king returned triumphantly from France in 1415, he was met at Dover by a grand procession, in which, we are told by an old poet—

> "The Mayr of London was redy bown
> With alle the craftes of that citie,
> All clothyd in red throughout the town;
> A semely sight it was to see."

At the same monarch's funeral they made an impressive appearance with torches and mourning emblems.

In the reign of Henry VI., a complaint was made to the king by the Commons against the trading companies. It set forth that "the masters, wardens, and commonalty of several guilds, fraternities, and other companies, incorporate in various parts of the kingdom," frequently made unreasonable ordinances under colour of their charters, as well as corrected offences, the punishment of which belonged only to the king or his officers; and also that they "confederated things for their own single profit, and to the common damage of the people." They prayed that all such companies should be required, by a certain day, to produce their charters before justices of the peace or governors of cities, for registration; and that henceforth they should be subjected to a penalty of £10 for exceeding, or acting contrary to, the powers they rightfully enjoyed. This very reasonable petition was granted.

Succeeding monarchs continued to bestow their favour upon the guilds. Henry VII. especially honoured them by becoming a member of the Merchant Tailors, and delivering that company a new charter from the throne; at the same time being himself clad in the livery of the company, made of the richest materials. He afterwards presided as their master, clothed in the same dress.

We must reserve our concluding notices of this subject for another paper.

* Continued from page 281.

*Window Plants and their Culture.**

Among hardy plants usually raised from seed, there is none more generally grown than mignonette. The best way in which to manage it, is to grow it into what is called a "mignonette tree." This is accomplished by cutting carefully out all the little branches which appear at the junction of the leaves with the stem. A sharp knife must be used, so as not to injure the leaves. The plant under this treatment runs up to a single head of flowers; cut them off as soon as visible, and allow the branch that grows from the top leaf joint to grow, training it to a thin stick. When about a foot high, in October, let the top branch out and flower, and, by judicious pruning, it will form a fine head of deliciously-scented flowers. In spring, it can be again pruned to one single stalk, and allowed to grow still taller. Thus treated, it will grow for years.

In beginning to treat of the culture of window-plants separately, the camellia is entitled to the first place, from the perfection of its form and beautiful colours. It is at all times an object of beauty from the richness of its evergreen leaves; but when its snowy white or bright rosy waxen flowers appear, it has hardly an equal.

The camellia was introduced into England in the year 1739 from China, by Father Kamel, from whom it has taken its English name. Like most of the plants which we have obtained from China, the camellia is nearly hardy. It has been grown through the winter in the open air, and with very little protection, will grow in the border; but the flowers, under this treatment, are not worth much. It can be easily grown and successfully flowered in the window of any room where the frost cannot get at it. The soil in which it succeeds best is composed of two parts good loamy earth and one part each of sand, peat, and well-decayed manure. As soon as the plants have done flowering, they must be repotted, if they seem to require it, that is, if the pot is filled with matted roots. If the roots are matted, it is better to break off the matted portions with the hand than to *cut* them off. As soon as they have been potted, they will require plenty of water until the new shoots have ceased growing. They ought to be in the warmest spot at command until they have completed their growth, always protecting them from the direct rays of the midday sun. To make room for other plants which will be in blossom, the camellia may be placed out of doors until September, when it is to be brought in and kept for the winter in any cool place where it will be free from frost. The flower-buds of the camellia are, when just expanding, very liable to drop off; this is caused by sudden changes in the heat of the room in which they grow, and by unequal watering. Let them be regularly watered, and, if possible, protect them from sudden alternations of heat and cold. Cuttings of the camellia can be struck at any time, except when the young wood is growing; but they grow most readily immediately after this period. Cut off the young branches, leaving them four or five joints in length; cut the bottom square off below a joint, and take off a couple of the lower leaves. Place the cuttings in sand and cover with a bell-glass, and in heat they will strike quickly.

The camellia, if it has plenty of light and air, is not subject to the attacks of insects to any extent. Sponging the large green leaves will be of great benefit to the plant, and will much improve its looks.

The camellia is constantly grown from seeds to obtain new varieties; but, as the seeds require two years to come up, and do not generally flower until the fifth year, it is a much better plan to procure plants or cuttings, than to wait for plants from seed.

The next place may be given to the fuchsia, which, from the elegance of its mode of flowering, and the ease with which it is cultivated, is in universal favour as a window-plant.

The best time to increase the stock of plants is in the spring, just as soon as the young shoots are long enough to be handled. Slip them off close to the main stem, and plant them round the edge of a four or five-inch pot. If they are kept, by means of a bell-glass, and a moist, warm atmosphere, from withering at all, they will be rooted in a fortnight or three weeks from the time they are put down. When they are well rooted, they are to be removed into separate pots (small ones); and, as they require it, remove them until they are in five or six inch pots, in which they will flower. The soil that suits them best is rich, loamy earth, with a mixture of well-decayed manure, and a very little sand to make the soil slightly open in texture. When the plants have done flowering, give them as much sun and air as convenient, so that the green shoots may be ripened well for the coming year. If convenient, they may be placed out of doors until the approach of cold weather. A little frost will not kill them; but it is much better to avoid the danger. Through the winter, the only attention they require is to keep the earth in the pots pretty dry, and to keep the plants from making new shoots. Of course, all the time, care must be taken to prevent the soil from drying entirely, and to keep them from frost. About March, they will begin to grow, when, if they require it, they may be shifted into pots a size larger, or have some of the old roots and earth rubbed off, and be repotted in the same pots, adding some fresh earth. As I have already

* Continued from page 259.

mentioned, the culture of the fuchsia from seed is simple, and is interesting from the chance it offers of raising new varieties. The most of the young plants will flower the first year. When the plants are going into blossom, an occasional watering with weak manure water will much improve the flowers.

Thomas Crowther, the Tape-sizer of Todmorden.

We recently reported, in the columns of the Working Man, a very remarkable speech delivered by a working man at a Reform meeting at Todmorden. Some of the principal metropolitan newspapers published the speech in full as a practical answer to the aspersions cast upon the working man, and the picture drawn of him by Mr. Lowe and some writers who, fancying that the labouring man was at a moral discount, appeared to think that there was a favourable opportunity of going with the stream—being "strong upon the stronger side"—and talked largely of the utter unworthiness of the working classes. The person whose speech was thus converted into a substantial argument, was Mr. Thomas Crowther, a working man, employed as a tape-sizer—that is, one who sizes warps for weaving—in a factory at Todmorden. The clear and even elegant style of the speech, the incontrovertible soundness of the arguments, and, above all, the temperate tone and entire absence of class animosity, at once turned attention to the author; and we propose, in a short sketch, to describe the career of one whom all right-minded and intelligent working men must feel to be an honourable representative of their order.

Thomas Crowther was born in Todmorden on the 25th of May, 1836. He was one of those waifs and strays of illicit love, who, unfortunately, figure so numerously in the returns of the Registrar-General as "illegitimate." His parents were extremely poor, his mother being a weaver in a cotton mill, and daughter of a journeyman plasterer, and his father a shoemaker. Soon after the birth of Thomas, his father went to America, leaving the burden of supporting the child upon the mother. She struggled well for seven years, and then died, leaving the boy to the mercy of the world. Her parents, though little able to bear additional expense, contrived to send him to school, more or less regularly, until he was thirteen years of age. His teacher was a self-taught factory operative—a man of intelligence, who did his best to impart to his willing pupil all the knowledge he himself possessed. We may suppose that his acquirements were not very extensive, as reading, writing, and arithmetic were all that young Crowther mastered under his tuition. When he left school he was taken on at the factory, and worked at the loom for upwards of ten years. His spare time was devoted to the acquisition of knowledge, and the few books he was able to collect were his chief companions. When about twenty-four years of age, he was promoted to the office of tape-sizer—an occupation frequently involving long days of work in a heated atmosphere. About this time he became generally known in the town as one of the most active members of the Todmorden Mechanics' Institution, where his remarkable power of speech was soon conspicuous. It was not, however, the sounding fluency of the mere debater which made Thomas Crowther's Institutional reputation; but his closeness of reasoning, tolerant spirit, and the healthy tone of his mind, which, in his case, had the invaluable assistance of ready speech and mastery of graceful and vigorous diction.

At the annual *soirées* of the Institution, Thomas Crowther was always the member selected to appear on the platform with men of far higher reputation—Members of Parliament, clergymen, literary men, and others, who by their presence on such occasions encouraged the members to persevere in the path of intellectual improvement. We have before us several reports of these interesting meetings; and it is not too much to say that none of the speakers were more eloquent and effective than the hard-working man, who had just changed his clothes of labour, and hurried from the factory to the platform.

Speaking in 1861, he said:

We have, I trust, got past the time when ignorance is regarded as a lesser evil and knowledge as at best but a doubtful good. The experience of past years has been sufficient to teach us that in an increase of knowledge lies our own best interest and our true national safeguard. The predicted days have come upon us when many shall run to and fro, and knowledge shall be increased; and in the dilemma which has thus been forced on us, we at least have been wise enough to perceive that our true policy lay in assuming the direction of a movement we could not avert, and by our Mechanics' Institution and other kindred means are seeking to direct the feeling into legitimate and useful channels, as at once better and safer than damming-up each outlet, when it would be sure to stagnate and poison till the body corporate became swollen to bursting with a moral dropsy; and we are now reaping the fruits of that wise discernment. While other nations are armed to the teeth, and yet find difficulty in maintaining order in their own provinces, when students are always suspected of treason, and universities are regarded as the hot-beds of sedition—we fear nothing from an increase of knowledge, nor need the voice of cannon to call forth our loyalty, but, as is shown in the calamity that has fallen on us, from the lowest and poorest in our midst, the prayer has gone up to heaven that God would bless our good Queen and help her in her great bereavement. The turbulence of ignorance has in a great measure given place to orderly peacefulness, and now we fear little from any outburst of popular violence, for our honest course has so well enlightened the public mind that however severe the depression of trade, they see as clearly as any one the utter uselessness of all forcing-processes.

Two years later he made an excellent speech, on a similar occasion. We quote a passage full of sound thought, and admirably expressed:—

The days are past when a man could say, "I have no interest in my neighbour's welfare;" for now the several classes of society are so thrown together, and their destiny is so interwoven, that whatever tends to the interest of one is for the benefit of all. If a man is ignorant, it is so much power subtracted from the common stock, and society, as a whole, has to bear the loss. His work loses in value for want of intelligent thought being brought to aid him, he passes through life fit for nothing but the commonest drudgery of mechanical toil, and in old age is oft thrown on his master's charity, or left to be a burden his life out on society at large. There is danger, too, in ignorance, in that it makes life less secure, and property less safe and valuable, and threatens, moreover, the very constitution of society, in that ignorance is a chronic evil too near akin to madness to be controlled or made useful; it moves by unthought-of impulses, and in methods that are unaccountable, and in a moment when least expected the frenzy of the popular passion may vent itself in a way that shall cause misery to thousands, and throw back our progress for years and years to come. For these reasons, then, it becomes at once the interest and the duty of all who can to help on the time when the working man shall rise to that mental equality with the other class of society which shall do away with the heart-burning and fancied antagonisms that now sunder class from class, and enable us, in our several walks of life, to understand one another better; when the neglected ones that are now a danger or a disgrace shall become useful members of society, and citizens worthy of that free England it is our privilege to live in.

Later speeches are similar in tone; and we can well understand, from their perusal, the influence which Mr. Crowther exercises over his fellow-members.

In addition to his hard work in the factory and his exertions in the Mechanics' Institution, Mr. Crowther is an active member of the United Methodist Free Church, a local preacher, and a Sunday-school teacher. He labours hard to make his fellows better than he found them. He is yet a young man; and we trust that he may be spared for many years to witness the fruition of the good seed he is so industriously sowing.

THE FACTORY ACTS ANTICIPATED IN BIRMINGHAM.

In the early part of the present year a meeting was held in Birmingham, at which several of the principal manufacturers of the town advocated the introduction of the Factory Acts, subsequently taking upon themselves the voluntary adoption of the principal clauses of the same. A set of the rules carried out in one of the factories has been forwarded to us. It is as follows:—

"RULES TO BE OBSERVED AT FRIDAY BRIDGE WORKS.

"1. No persons shall be allowed to enter this manufactory but those who are employed therein.

"2. No child will be allowed to work in this manufactory under nine years old.

"3. All workers are required to keep their time punctually, as follows:—Work hours commence at seven o'clock in the morning, and continue until nine o'clock. Forty minutes are then allowed for breakfast.

"At twenty minutes to ten o'clock work recommences, and continues until one o'clock. One hour is then allowed for dinner. At two o'clock work is resumed until six o'clock, when the manufactory is closed. No person will be allowed to work after six o'clock without special order.

"The gates will be closed precisely at fifteen minutes past seven, opened at nine o'clock, and closed at forty minutes past nine in the morning; at one o'clock they are re-opened, and closed again at fifteen minutes past two. No person will be admitted after the gates are closed.

"No cooking or making tea will be permitted except at the proper time allowed for breakfast and dinner. Every person found cooking, except at proper time, shall for each offence forfeit threepence to the funds of the sick society.

"4. No one employed is allowed to bring children, or to engage any individual without the approbation of the employers.

"5. No basket or bundle will be allowed to be brought into, or taken away from this manufactory.

"6. No person will be allowed to remain during dinner hour without permission.

"7. No person will be allowed to leave this manufactory during work hours without permission.

"8. No person will be allowed to enter any shop unless employed therein; if so offending to be fined threepence, to go to the sick fund."

It can be easily imagined how mutually advantageous the change must be from the adoption of the well-considered rules before us, when introduced as a system in any manufactory. Perhaps, of all the great manufacturing centres, whether we take Glasgow, Leeds, Manchester, or the cloth-workers of the West of England, there is not to be found the same amount of irregularity in any of the mills or manufactories as is observed in Birmingham. Here time is frittered away. Too often, in very many places, workpeople may commence work at any hour their inclination suits them. Seldom before eight o'clock, oftener nine, and sometimes ten; and at eleven o'clock work is discontinued for luncheon, and it too frequently happens that the late working hours of the previous night destroys the appetite for breakfast, so now a beefsteak or a rasher of bacon is cooked, and a good half hour is lost thereby. Here, however, the evil does not end. The same looseness is observable in the evening. The manufacturer must get his orders executed. The result is, the manufactory must be kept open for the late morning comers, and so far into the night do they peg at it, sometimes nine, but oftener ten and after; the additional privilege being extended to those who are devoted to the worship of Saint Monday, to work all night towards the latter end of the week to make up for time lost. And as most of the trades are very much subdivided, one branch being interdependent upon another, those of regular habits, or desirous to be, whether child or adult, are often involved and necessitated to work the same hours with them they would scorn otherwise to imitate. This little ray of light leads us to hope there are not far distant better days for working people.

Safety for Miners.

ANSELL'S FIRE-DAMP INDICATOR.

In 1844, the coal and iron-stone mines of Great Britain numbered 3,220, and the computed number of male persons employed was 307,542. It appears that of these one life in 354 was lost by accident during the year, and that for every 109,718 tons of coal recovered and brought to the surface one human life was sacrificed. Beside the fatal accidents, there is a fearful array of contusions, fractures, maimings, amputations, &c., so that the record of mining accidents reads more like the description of a battle-field than the ordinary report of industrious and peaceful pursuits.

This heavy mortality shows that the means at present employed to indicate the presence of fire-damp are inadequate. Much evil, however, results from the recklessness and ignorance of the workmen. The "Davy lamp" is constantly being tampered with; the "Geordie" is not held in much favour; and the "Dumas" lamp does not yield sufficient light to enable the miner to see his work. The Davy lamp serves, however, to indicate the presence of fire-damp. Mr. G. F. Ansell, of the Royal Mint, now offers to miners and mine-owners a simple and beautiful fire-damp indicator, by means of which the presence of the smallest per-centage of fire-damp or choke-damp is immediately detected. We give a description in his own words:—

"The apparatus is of three kinds. The first consists of a diffusiometer, an electric alarum, and a small galvanic battery, the whole being arranged under a small stand, of sufficient portability for the miner to carry with him into the heading where he is at work, and upon a sudden irruption of fire-damp the alarum is rung instantaneously.

Its action may be explained in the following manner:—The diffusiometer consists of a bent tube in the form of the letter U, having at one end a cup or chamber, the surface of which is enclosed by a piece of porous tile. This tube is partially filled with mercury. When the fire-damp surrounds it, diffusion of the gas takes place through the porous tile, compressing the volume of air within the cup, and thereby forcing the mercury downwards, which rises in a corresponding manner in the opposite side of the tube; this is made to form contact with one of the terminal poles of the battery, and the alarm is given. By proper adjustment it can be set to indicate within five seconds after the irruption of gas. The second form of instrument is for indicating gradual accumulation; it consists of an inflated india-rubber ball, which is fixed in a frame. Diffusion takes place through the surface of the ball, causing it to expand. This force is applied by a mechanical arrangement to complete the circuit of a battery, and by means of a telegraphic wire it will indicate at the mouth of the pit where the air of that particular part of the mine is explosive. These instruments could be placed in different parts of the mine, and by a simple system of telegraphy a perfect knowledge of the state of the air would be had by those above ground; and in the case of a gradual accumulation taking place in the night during the absence of the miners, the affected part of the mine would be indicated at the mouth of the pit. The third arrangement is for indicating the presence of fire-damp and measuring its quantity. It is an adaptation of the aneroid barometer, and is extremely portable, being little larger than an ordinary watch. The instrument is graduated to the ordinary barometrical scale, and can be used as a barometer. When not required as a fire-damp indicator a small valve is attached, which, being open, admits the atmosphere, and the instrument acts as a barometer; but, when closed, the admission of gas must be through a porous tile, which causes compression (as before explained), and the indication is given by the hand upon the dial. The indications are unvarying, 100 per cent. of fire-damp being indicated by 1·680 inches of the barometrical scale, and 10 per cent. by 0·130 inches. It will also determine the amount of carbonic acid or choke-damp, the hand moving in the opposite direction to that for fire-damp."

In order to render the description fully intelligible, we append a description of the construction of the aneroid barometer.

The aneroid barometer was invented in 1847, by M. Vidy, and is as unlike an ordinary barometer as can be imagined. It is constructed of metal, and has no mercury. Its construction is based on the elasticity of metals—an essentially different principle from that on which the ordinary barometer depends. The form adopted by the inventor was rather complicated, but a skilful mechanician (M. Bourdon), acting upon M. Vidy's idea, and availing himself of the property discovered by Linz, a Prussian, that tubes curved to an elliptical section are distorted under the influence of internal and external pressure, realised a more practical form for the aneroid barometer, which is now generally adoped.

Bourdon's aneroid is composed of a copper tube, wide and greatly depressed, so that its transverse section has the form of a very elongated ellipse, while the tube itself has the appearance of a thick ribbon of copper. This ribbon is bent so as to form an almost entire circle; it is fixed at its middle in a circular case. A vacuum is effected in the tube, its two extremities, *a* and *b*, being closed, and they are connected by small copper pins with the two extremities of a small lever, moving on its centre, to which is fixed a sector of a toothed wheel, *g h*, of large radius, which acts on the pinion *o*, carrying an index hand, *c d*, the movements of which, over a graduated circle, serve to indicate the atmospheric pressure. In proportion as this pressure increases, the tube flattens in corresponding quantity; its curvature increases, its two extremities approach nearer together, and the index turns in one direction. When the pressure diminishes, this series of effects is produced in the opposite direction, and the needle turns the contrary way to what it did before. This barometer has the advantage of being light, portable, and not easily damaged or rendered unserviceable. It is very sensitive and correct.

THE FACTORY ACTS AND THE EMPLOYMENT OF CHILDREN.

Alluding to the argument very frequently adduced by employers against legislative interference with their respective trades, that thereby production would be seriously diminished, Mr. Redgrave, one of Her Majesty's Inspectors of Factories, in his last official report, quotes from letters which he has received from masters, which go to prove that this argument is, to a great extent, fallacious. The manufacture of earthenware was, perhaps, the most important brought under the Act under discussion, and of its operation, Messrs. Cochrane and Co., of the Britannia Pottery, Glasgow, write as follows:—"We confess that we were a little fearful, at first, of the effect of the new Act; but, so far, we have got on wonderfully well, and are persuaded now that, notwithstanding a few sources of annoyance created by it, some of which are inseparable from any change whatever, the trade will, ultimately, be very largely benefited by it; as we fully anticipate that greater regularity in the men, and the greater age of the youths from whom, of course, our tradesmen are drawn, will likely give us a better class."

Mr. Maling, of the Ford Pottery, Newcastle-on-Tyne, has also written:—"I can only say that I am very glad the Factory Act has been introduced. I think it will much improve the respectability of the workmen. When children were allowed to work after 6 p.m., men inclined to drink would do so on Monday and Tuesday, and would work their children half the nights of Wednesday and Thursday to make up their wages. They would also employ children of any age they could get, and very frequently the children were much too young and overworked."

The manufacture of lucifer matches is one of those dangerous employments which it was highly necessary to regulate, and very satisfactory reports are given by the large makers on the operation of the law. Messrs. Bell and Black, of London, say:—"As far as our firm is concerned, the Act has not had a prejudicial effect, but the reverse; and we believe that our opinion of the working of the Act will be endorsed by all large manufacturers of matches."

Respecting the effect of legal restriction on the employment of paper-staining, Mr. Henderson, the sub-inspector at Blackburn, on the authority of Messrs. Potter and Co., of Over Darwen, writes:—"When their works were first placed under the restraint imposed upon such establishments by the Act in question, a fear was entertained that their trade would suffer to some extent, as it was not unnaturally supposed that a curtailment of the hours of labour would lead to a diminished production of a proportionate amount; and as the winter months embrace the busiest season in the year in the paper-staining trade, the operation of the Act at Messrs. Potter's works has been watched with great care during the past six months. The result has proved an agreeable disappointment. There has been no decrease in production, which has been fully maintained, and that without any additional hands having been employed. The manager at Messrs. Potter's is inclined to attribute much of the result to the fact that, as the Act provides for regular meal-times for the children and young persons, and limits the hours of labour, the hands employed work with more energy and assiduity while they are at work than they did formerly, when their hours were irregular and unrestricted. The principals express themselves generally as thoroughly satisfied with the operations of the Act, which need not interfere adversely with the interests of the trade, or of their establishment; and after the first week or two, when it was being introduced, they have been but little inconvenienced by it."

Messrs. Potter's experience is confirmed in a remarkable manner by that of another large paper-staining firm in Lancashire—Messrs. Heywood and Co., of Manchester. The latter say:—"The inconveniences we expected to arise from the introduction of the Factory Acts into our branch of manufacture, I am happy to say, have not arisen. We do not find the production at all interfered with; in short, we produce more in the same time, as the young folks are not so wearied out as formerly with long hours. We must thank you for the assistance and advice you have so kindly rendered us on previous occasions, and we may say that the introduction of the Act, hitherto, has not given us any annoyance or cause of regret."

Then, as to the employment of fustian cutting, a branch of trade which, when the Act was applied to it, was in a most depressed and wretched state, evidence of an extraordinary improvement is furnished by this report. One master writes:—"There is no doubt the Act has been a great benefit, and with factory hours the hands can cut as much as we require, or ever did require them to do; for a hand was never asked to cut more than nine lengths a day. I am quite certain that the Act has raised the character of the trade. I would not have old times again." Another master says:—"Neither employers nor employed, not a single party I knew of, would be without the Act on any account;" a third, "I am quite certain the Act has been an advantage, and has raised the trade in the social scale, as it were. I quite approve of the Act, and the hands generally seem to like it very well;" while a fourth, in alluding to the effect of legal restrictions on the trade in regard to wages, says, "Formerly so many children were employed that the large undertakers, rather than be without work, would take it at any price. When prices were low, to keep the young hands together, until trade revived, I lost £3 per week by taking orders at a low price. This 41-inch double velvet we should have got 12s. per 100 yards for during the American war, and now we obtain 24s. Some women get 12s. or 13s. per week, but on an average about 10s. Young persons of twelve or thirteen years of age can get, at the lowest, 8s., and at some work 10s. per week."

JOHN STUART MILL ON THE FUTURE OF THE LABOURING CLASSES.

Whatever advice, exhortation, or guidance is held out to the labouring classes, must henceforth be tendered to them as equals, and accepted by them with their eyes open. The prospect of the future depends on the degree in which they can be made rational beings.

There is no reason to believe that prospect other than hopeful. The progress, indeed, has hitherto been, and still is, slow; but there is a spontaneous education going on in the minds of the multitude, which may be greatly accelerated and improved by artificial aids. The instruction obtained from newspapers and political tracts may not be the most solid kind of instruction, but it is an immense improvement upon none at all. What it does for a people has been admirably exemplified during the cotton crisis, in the case of the Lancashire spinners and weavers, who have acted with the consistent good sense and forbearance so justly applauded, simply because, being readers of newspapers, they understood the causes of the calamity which had befallen them, and knew that it was in no way imputable either to their employers or to the Government. It is not certain that their conduct would have been as rational and exemplary if the distress had preceded the salutary measure of fiscal emancipation which gave existence to the penny press. The institutions for lectures and discussion, the collective deliberations on questions of common interest, the trades unions, the political agitation, all serve to awaken public spirit, to diffuse variety of ideas among the mass, and to excite thought and reflection in the more intelligent. Although the too early attainment of political franchises by the least educated class might retard, instead of promoting, their improvement, there can be little doubt that it has been greatly stimulated by the attempt to acquire them. In the meantime, the working classes are now part of the public; in all discussions on matters of general interest they, or a portion of them, are now partakers; all who use the press as an instrument may, if it so happens, have them for an audience; the avenues of instruction through which the middle classes acquire such ideas as they have are accessible to, at least, the operatives in the towns. With these resources, it cannot be doubted that they will increase in intelligence, even by their own unaided efforts; while there is reason to hope that great improvements, both in the quality and quantity of school education, will be effected by the exertions either of Government or of individuals, and that the progress of the mass of the people in mental cultivation, and in the virtues which are dependent on it, will take place more rapidly, and with fewer intermittences and aberrations, than if left to itself.—*From the People's Edition of "Principles of Political Economy."*

Steel Watch Chains.—The small steel chain which winds round the fusee of a watch is about eight inches in length, and contains upwards of 500 links, riveted together. It is not thicker than a horse-hair, and the separate links can but just be perceived with the naked eye. Modern invention has, as yet, discovered no substitute for this chain equal to it in slenderness, strength, and flexibility. These watch chains are all manufactured at Christchurch, in Hants. The links are punched out by girls from plates of steel, and very young girls pick up the links, and rivet one to the other. Watch-chain manufacture has been the staple of Christchurch for nearly a century, ever since, in fact, pocket watches began to be generally carried.

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

IN estimating the work done by a man or other animal, we must distinguish between the work actually done, and the useful work. In some cases, the difference is due to a wasteful employment of the force at our disposal, and an expenditure of work on useless movements of the body that might be avoided; but, in other cases, no care will suffice to prevent a large amount of work being expended wastefully—as it may be impossible to do the work at all without wasting much force on the necessary movements of the body. This seems to be especially the case with the horizontal transport of weights—a kind of work that cannot be effected without the waste arising from the transport of the labouring animal from place to place. If we divide into useful and wasted work the work done in the horizontal transport of weights, in the three examples already given, we shall find the following results :—

HORIZONTAL TRANSPORT OF WEIGHTS.

KIND OF LABOUR.	USEFUL WORK.	WASTED WORK.	TOTAL.
1. Pedestrian .	—	7,543 ft.-tons	7,543 ft.-tn.
2. Porters . .	2,238 ft.-tons	5,402 „	7,640 „
3. Pedlars . .	2,688 „	4,276 „	6,964 „

The amount of work wasted in this kind of labour is inherent in the labour itself, and is much greater than that wasted in labour directed to the lifting of weights, in which the body may be kept nearly stationary, and a minimum expenditure of labour take place on unnecessary movements.

In employing the labour of quadrupeds, such as oxen, horses, and asses, we are forced to lose much of their force in the useless transport of the animals themselves, as they are not adapted like men, monkeys, racoons, or turnspit dogs, to climbing labour, in which there is always a minimum of force wasted on the body itself.

If we analyse the table of p. 178 in the same manner as the examples of horizontal transport of weights, we find the following :—

LIFTING OF WEIGHTS.

KIND OF LABOUR.	USEFUL WORK.	WORK WASTED	TOTAL.
1. English Treadwheel . . .	417 ft.-tons	—	417 ft.tns
2. Norwegian Treadwheel .	390 „	—	390 „
3. Hodman . .	181 „	182 ft.-tons	363 „
4. Shovellers . .	125 „	88 „	213 „
5. Tipping Wheelbarrow. . .	139 „	151 „	290 „
6. Paviors . .	352 „	—	352 „
7. Piledrivers (a)	242 „	—	242 „
8. Piledrivers (b)	260 „	—	260 „
9. Box lift . .	404 „	—	404 „
10. Swing lift . .	280 „	—	280 „
Mean . .	279 ft.-tons	Mean . .	321·1 ft-tns

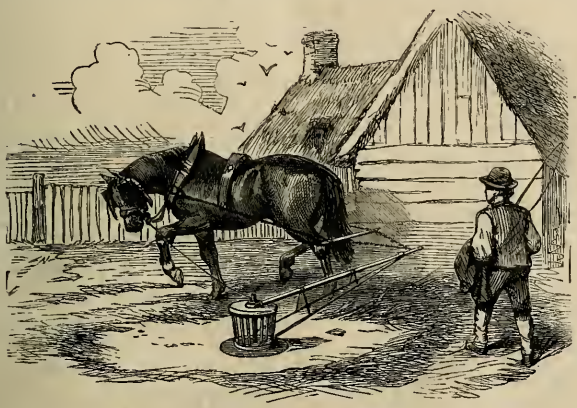
A horse yoked to a wagon will produce a larger daily amount of work done, than the same horse yoked to a whim, or similar contrivance; for he has greater freedom of action for his muscles, and labours under more natural conditions. All animals, also, including man, give out more work when labouring at a slow than at a rapid rate; and there exists for every different description of labour, a certain rate of performance, at which the maximum of work is done. The following table shows the work done by several animals in the horizontal transport of weights :—

HORIZONTAL TRANSPORT OF WEIGHTS.

	HOURS OF LABOUR.	WORK DONE.
1. Horse yoked to wagon (walking)	10 hours.	34·6 mile-tons
2. Horse yoked to carriage (trotting)	4½ „	23·9 „ „
3. Horse yoked to a whim (walking)	8 „	17·6 „ „
4. Horse yoked to a whim (trotting)	4½ „	14·8 „ „
5. Ox yoked to a whim	8 „	15·8 „ „
6. Mule yoked to a whim . . .	8 „	11·9 „ „
7. Ass yoked to a whim	8 „	4·9 „ „

The results of the foregoing table are calculated from the French observations, on the hypothesis already proved, that horizontal transport exceeds vertical lifting of weight, in the proportion of 25 to 1. The observations were made by measuring with a dynamometer the pull on the traces of the wagon in each instance, estimating the velocity with which the animal moved, and the length of its daily labour.

It seems to me that the works done by the horse drawing the wagon and carriage, are rather above the average, and should not be regarded as more than an effort made for a day or two; for no horse could continue, for a long succession of days, to draw a ton weight each day, for 34 miles along a well-made horizontal road; although such an effort might easily be made for a short period.



THE HORSE GIN, OR WHIM.

The accompanying illustration shows the general arrangement, and the inconveniences of the horse gin, or whim. It illustrates the pumping apparatus used to supply the Royal School of Portora with water from Lough Erne. The motions of the horse are necessarily cramped by the narrow circle in which he is compelled to move; and the work obtained per day, without distressing the horse, may be estimated as follows :—

The horse working for five hours, pumps 3,000 gallons of water to the cisterns, 120 feet above the level of the lake, each day. Hence, the work done in five hours, is

$$\frac{3{,}000 \times 10 \times 120}{2{,}240} \text{ ft.-tons.}$$

And this multiplied by the coefficient 25, and divided by 5,280, the number of feet in one mile, becomes

$$\frac{3{,}000 \times 10 \times 120 \times 25}{2{,}240 \times 5{,}280} = 7{\cdot}61 \text{ mile-tons.}$$

Or, in other words, the horse working for five hours at the pumps, does work equivalent to drawing a load of one ton a distance of 7·61 miles along a level, well-made road, whose coefficient of friction is 1-25th. As the whole day's labour is considered to be eight hours, at this description of work, we should add to the 7·61 miles 3-5ths of its amount, together with the work due to the friction of the pumps and pipes through which the water is forced. In this description of work, it is always considered right to assume 1-3rd of the work done to be consumed in friction. Hence, we obtain finally,

Work done in five hours . .	7·61 mile-tons.
Remaining three hours . . .	4·56 „
Friction of pumps	4·05 „
Total . .	16·22 mile-tons.

*Electrotyping.**

MOULDS.

EVERY substance which is a conductor of electricity may be employed to form a mould suitable for the electrotyping process, provided that it is not liable to be acted upon by the solution, or to be reacted upon by the metal precipitated. A non-conducting mould fulfilling these conditions may also be employed, by taking the precaution of imparting a conducting faculty to its surface by means of a very thin coating of a conducting body, like plumbago, in a state of powder.

Metallic Moulds.—The conducting bodies capable of serving as moulds are—the metals, well-calcined carbon, and plumbago. The solution most commonly employed in electrotype operations is sulphate of copper, upon which zinc, tin, and iron act. These three metals cannot, therefore, be employed to make moulds, unless previously coppered in alkaline baths. Platina and gold perfectly unite all the required conditions; but their high price does not admit of their being employed on a large scale. These exceptions stated, there remains among the abundant metals only silver, copper, and lead, and the alloys of the latter metal, to form moulds. Silver, which can be precipitated only by gold and platinum, must be employed to reduce the metals when we wish the deposit precipitated to be of great purity. We obtain very excellent moulds of copper by means of an electro-chemical deposit of this metal upon the original subject, or upon a cast suitably metallised. Sheet-lead, when carefully cleaned of its oxide, is first flattened in a press between two iron plates. The object to be moulded is placed on the lead and covered with a steel plate, and passed through a rolling-press; the lead receives a perfect impression of even the most delicate parts. This is the method adopted in "nature printing." The alloys of lead employed are plumber's solder type metal, and fusible metal. Moulds in fusible metal are employed only in copying medals. The alloy most frequently employed consists of five parts lead, three parts tin, and three parts bismuth. It melts at 176° Fahr. With this alloy moulds are taken by percussion. Moulds are taken in plumber's solder by pouring the metal on a piece of paper, and laying this on a piece of cloth. The medal to be copied is laid upon the alloy, covered with a piece of wood, and struck a sharp blow. The mould must not be separated from the metal until the latter is quite cold. Success in this kind of moulding depends on the skill of the operator.

Non-conducting Moulds.—The plastic materials most commonly used are plaster of Paris, wax, stearine, paraffine, gelatine, sealing-wax, and gutta-percha.

Wax.—Plaster models are put into warm water until they are thoroughly saturated, but not so as to appear wet on the surface; the plaster is then put into a paper bag, and melted wax poured upon it. Left in a cool place, the wax easily separates from the plaster; but as wax and similar substances contract materially upon cooling, it is necessary to employ a mixture of equal parts of yellow wax and resin. When melted and stirred together, the mixture is left to repose until all the bubbles have disappeared, and it has acquired the consistency of treacle. It is then poured over the model like wax.

Stearine.—Stearine may be employed in lieu of wax—or, still better, a mixture of thirty-two parts of spermaceti, seven of wax, and seven of mutton fat, melted and strained. It is well to add a little plumbago to the mixture, to impart conductibility. Plaster moulds should be saturated with stearine. Sulphur moulds yield very fine impressions.

Gutta-percha.—This substance is admirably

* Continued from page 258.

* Continued from page 277.

adapted for electrotype operations. Sufficiently elastic to admit of the copying of undercut objects, and wholly unchangeable in acid and alkaline baths, it lasts almost indefinitely, if it be kept from the air. To prevent the spontaneous change of gutta-percha, it must be kept under water. When old it becomes brittle; its original properties may be restored by boiling it with a third of its weight of new gutta-percha.

There are two methods of obtaining a mould—by melting and by pressure.

The first method consists in putting into a stove heated to 230° or 250° Fahr., the model and the sheet of gutta-percha, mixed with one-third its weight of linseed oil, so as to form a kind of fusion on the surface of the model; then, on removal from the stove, the gutta-percha is pressed down upon the model by the hand, moistened with cold water to prevent adherence, until a perfect mould may be supposed to be taken. When the gutta-percha is cold it is separated from the model, and presents a perfect copy of all the details of the original. The principal objection to this method is that the gutta-percha undergoes great change, in consequence of which it will serve for only a small number of operations, and require a long time for each.

The second process, much preferable to the first, is by mechanical pressure. It requires a large quantity of material, but is a better and quicker process than that described above. On the platform of a screw-press a frame is placed, in which the *bed* upon which the model to be copied is laid. A lump of gutta-percha, softened in boiling water, and well kneaded in the hands, then a counterpart representing the principal sinuosities of the model, and horizontal on its upper surface, are laid upon the bed. In order to avoid the adherence of the model, it is gone over with a soft brush dipped in weak soap-water, and the lump of gutta-percha is dusted with plumbago. The gutta-percha, in yielding under the pressure, drives out the air and water before it, and impresses itself perfectly on the model. When cold, the mould is removed. Moulding in gutta-percha requires models in metal, which may be pressed or heated, without fear of injury. If the model be of plaster or wax, we have recourse to modelling in—

Gelatine.—This substance is more elastic than gutta-percha, and admits of objects more undercut being executed. It has the inconvenience of spoiling in acid baths, and of furnishing a very brittle metal, in consequence of the necessity that exists for making a very rapid deposit to avoid alteration in the surface of the mould. Gelatine becomes nearly impermeable if we add to its solution in warm water 2 per 100 of tannic acid dissolved in alcohol, and 10 per 100 of treacle. But it still spoils in the baths if care be not taken to protect the external surface by a thin coating of gutta-percha or by a thick varnish. Dipping the gelatine mould into a strong solution of alum renders it of a horny texture, and less subject to be acted upon by the bath, but the mould contracts a little in consequence of this treatment.

Sealing-Wax.—Only the best quality of this material can be employed as moulds. It is usually applied to copy seals, by holding a card over the flame of a candle and rubbing the surface in a circular direction with a stick of sealing-wax until sufficient thickness is obtained. Care must be taken that no air-bubbles exist. The seal or other object to be copied is then applied with strong pressure, and left till cold.

METALLISATION OF THE MOULDS.

Non-conductors of electricity require to be metallised in order to render them conductors. This is accomplished by two methods—the dry way and the wet way.

Plumbago.—Of all metallic or metallising powders applied by the dry way, plumbago is the best. Its unctuous nature renders its application easy: by means of a soft brush the plumbago may be applied to the most undercut portions of the mould. All kinds of plumbago are not equally good for metallisation, and it is useful to make trial of their conductibility before adopting them.

The moist way consists in coating the surface of the mould with a metallic solution, and in reducing the metal it contains by the action of a gas, of a liquid, or of light. The most convenient solution is that of nitrate of silver in alcohol; it is applied to the mould with a fine pencil, and left to dry. Two or three successive applications are necessary; then the article is submitted to the action of nascent sulphuretted hydrogen gas. Immediately the surface of the mould turns black the mould is ready for the bath, for the sulphuretted silver has rendered the surface conducting. We may arrive at the same result by replacing the action of sulphuretted hydrogen by that of phosphorus dissolved in sulphide of carbon, or by the direct action of solar light, or by gallic and pyrogallic acids, or by sulphate of iron in its minimum state of oxidation; but the first method is preferable. It is employed to metallise vegetable and animal matters, such as flowers, fruit, insects, and osier and reed articles, so as to produce very curious results. The reduction of nitrate of silver by hydrogen permits, also, of the metallising of silk threads, and, consequently, of coppering, gilding, and silvering them. So, also, by metallisation by the moist way, glass may be covered with metallic deposits, producing very remarkable artistic effects.

When the moulds are rendered conductors, a copper wire is attached to them, and they are put into the bath.

If the article be undercut, it is well to multiply the points of contact, so as to cause the deposit to fall upon several parts at once. The physical qualities of the copper obtained depend upon a perfect equilibrium between the four conditions which we shall describe hereafter.

The thickness of the copper deposited upon a given surface cannot be perfectly uniform, in consequence of the galvanic current acting in an inverse ratio to the distance. The result is that the parts of the mould nearest to the anode receive most deposit, while the distant portions receive much less. There exists, therefore, very sensible differences in the thickness of the deposits, and, consequently, the electrotype deposit does not present all the solidity desirable.

To remedy this inconvenience, it has been proposed to solidify the interior of the galvanic shell, and take advantage of the different fusion points of copper and brass.

By means of the gas blow-pipe, wire or pieces of brass are melted into the copper shell, and perfectly unite with it, giving to the electro deposit the malleability and other qualities of an article that has been cast.

Metallic Powders.—Copper and silver are sometimes employed as metallic powders.

To obtain an extremely fine copper powder, the copper is precipitated from a boiling solution of its sulphate by metallic zinc; the copper is afterwards separated from the zinc in excess by diluted sulphuric acid; the powder obtained is dried at a gentle heat.

Silver powder is prepared by boiling recently prepared chloride of silver in water acidulated with sulphuric acid, and a piece of pure zinc.

The metallic powders are applied to the moulds—plaster impregnated with unctuous matters, &c.—after slightly warming them. A camel's or badger's-hair pencil is preferred for this purpose. The parts of the mould on which the metal is not to be deposited are coated with varnish.

Metals can be applied to glass without the interposition of a varnish. The object is submitted to the fumes of hydrofluoric acid, until the surface assumes a *mat* or ground-glass appearance. Plumbago is then applied with a cork or leather stump; an exceedingly thin coating of plumbago adheres to the rough surface with great force.

Cleaning.—The plastic moulds, when covered with a conducting coating by the preceding processes, are ready to be immersed in the baths. The metallic surfaces require to be first scoured and cleaned, either by chemical or mechanical means, which will be described hereafter.

SOLDERS.

To establish communication between the mould and the negative pole of the galvanic battery, a conductor is formed of a band of copper or of lead, which, if the mould is metallic, is soldered to the edges in the following manner:—

Soldering with Chloride of Zinc and Tin.—The two surfaces to be united are scraped clean and slightly moistened with a pencil dipped in hydrochlorate of zinc, and then are easily soldered with the soldering iron and a little tin solder. After putting them closely in contact, the soldering is completed with the iron, or the spirit-lamp.

Soldering with Stearine.—This process is simpler than the other. Stearine, generally at hand, is the only substance required to deoxidise the metals, and determine their adherence by the aid of tin solder.

The pieces to be cleaned are first scraped, and rubbed with sand-paper. The articles are then warmed at the flame of a spirit-lamp, and rubbed lightly with a piece of stearine. A very thin piece of solder is then applied to the heated part, which immediately spreads and combines intimately with the copper. The same operation is repeated upon the other piece to be soldered. The two articles are now held in close contact by a pair of pincers, and heated together, and they are left in the pincers until they are cold.

The Rev. F. D. Maurice's "Workman and the Franchise."

Always a thoughtful and distinguished writer, remarkable yet more for his ideas than his diction, the Rev. Frederick Denison Maurice has created another claim to public gratitude by publishing his admirable little volume entitled "The Workman and the Franchise." "Admirable" we have called it; yet, perhaps, "excellent" would be a more appropriate term, as having reference to its quality rather than its execution. Through dislike to add another theory to those already guiding or encumbering the world, the author does not define what kind of franchise he would have. Yet, he does appear to do that, for he evidently thinks that manliness and wisdom are the true qualifications for the franchise; but he does not commit himself to any method by which the legislator may lay his hands upon those who possess these qualities. Mr. Maurice, however, does great service by indicating what the legislator ought to look for, and by maintaining that in manhood, rather than in money, the true civic virtues are to be found.

The old Society of Painters in Water Colours, who have recently opened their Sixty-second Exhibition in Pall Mall, number among their painters Mr. Evans, of Eton, who has painted "Eton Common" and "Windsor from Eton Wick," in which the castle is seen in the distance. In each picture the painter has caught the spirit of Eton scenery—richness, life, verdancy, beauty, and a pervading mist, which softens and partly obscures the distinctness of objects, and which suggests a certain fecundity of nature which produces it. There is an Eton spirit about Mr. Maurice's writing. The ideas seem to melt away. There is a certain mellowing haze about them. There is a wealth of beauty in them—you quite feel that. Angel forms are there, but you cannot interrogate them, to learn their mind; though you cannot fail to be allured to follow them and be enchanted by their grace.

A people's edition of "The Workman and the Franchise" is published, at one shilling and sixpence, for the benefit of the best of all London institutions—the Working Men's College—on whose behalf the lectures which constitute the volume were delivered. Mr. Maurice treats of the "Representation and Education of the People," and presents an historical survey of the rise of the House of Commons of England, and the gradual development of freedom in Europe. Nothing can be more timely, valuable, or instructive than such a book; and, perhaps, no living author is better competent to write it than Mr. Maurice. In his "History of Philosophy" he delineated the mind of philosophers, as well as their systems; and in this book he discusses the conscience which underlies all politics which have life in them. When Mr. Stuart Mill was a candidate for Westminster, Mr. Maurice went to a meeting of electors, and said, "I do not agree with Mr. Mill. Perhaps on a hundred questions I should differ from him on ninety-nine. But what we want most in Parliament is a just man. I believe Mr. Mill to be a just man, and therefore, despite all difference of opinion, I come forward to support him, and to vote for him." This is the grace of Mr. Maurice's character, and the secret of his great influence for good over all who have the good fortune to come in contact with him in his classes, in his congregation, or through his books. He does not frown upon or repel any who seek his counsel. He who means well, it matters not what he means nor how he means it—if there be the spirit of honest worth in the man—Mr. Maurice appears to respect him. In every page of this volume this fine feeling wins the confidence of the reader, even when he dissents the most.

There is a wise sentiment, applicable to our present Parliament, which occurs early in this

volume: "If Caius Martius wished to assert Rome as a city of freemen, he should have welcomed the cry for freedom in all who dwelt under its shadow. That would have been the true security for the reverence of the old families." Our present word "people," Mr. Maurice points out, does not mean what the Roman meant by it. With us it means "all those who dwell in cottages," as Mr. Bright once defined the word. With the Roman, people meant patrician. Where Shakespeare uses the word "people," Macaulay uses the word "commons." Mr. Maurice points out that, with the Roman, "the patrician was the *Free Man*." The Roman spirit had this nobleness in it. If a man had not "a hide of land, still it behoved a Roman to be a free man. At all hazards, at all sacrifices, he must maintain his freedom." Despite, however, sentences so clear and thoughts so valuable as those just quoted, and which abound in every page of Mr. Maurice's book, we cannot be sure of his definition of "commons," of which the House of Commons is the sign. It must mean the knights of the shire, burgesses of the towns, freeholders and freemen. Yet the reader is not quite certain of this. Take these sentences: "The Norman barons or lords spoke the tongue which they had brought with them. The English tongue was the tongue of the Commons."

Now, who are the commons—who are the people above them, who are the people below them? When Mr. Alfred W. Hunt paints "Climbing Shadows," as may now be seen in the Water Colour Exhibition to which we have referred, or Mr. E. Warren paints the scene where the "cuckoo" sings, lately exhibited by him, you share the sentiment of the shadows, you imagine the very spot where the concealed songster is cooing. There is feeling and suggestiveness in the painters, but in books you want a backbone of definition. You want to know, and to know that you know. Mr. Maurice takes so wide a range of view that he seems to have no measure small enough for the ignorance of common men. If some fairy would lend him a rule of this description, he would be one of the happiest, as he is one of the noblest of the teachers of the "people," whatever the word may mean.

Mr. Maurice's book is, in fact, a history of the rise and growth of the House of Commons. We celebrate centenaries now, and rejoice on great days. In January this year was the six hundredth birthday of the House of Commons. Mr. Maurice seems to think that our politicians might wisely have celebrated that day, and we think so too. In 1265, the king of that time being in durance, the writs for summoning the first House of Commons "were really drawn by the Earl of Leicester." Few passages more interesting we have seldom met with, than those in which Mr. Maurice gives an account of the author of our Parliament. Leicester was a foreigner; he came of a bad family, had a bad character, and appears to have deserved it. "Yet he became dear to the Commons. He was celebrated in English speech and song as their deliverer. He was the man—to borrow the title of one of Miss Martineau's books—who fitted the hour. The moment was come when a work was to be accomplished which had long been preparing. A House of Commons had become a necessity. He perceived the necessity, and was the instrument of bringing it into existence."

In those days the Franciscans arose. "Grostête, afterwards Bishop of Lincoln, was completely carried away by the reports which he had heard of the Franciscan preaching. He longed to be admitted into so holy and noble an order. The denunciations of ecclesiastical wealth, the honour put upon the poorest people, the implicit protest against baronial tyranny, were most acceptable to him." We get here a glimpse of what there was renovating and sacred in Franciscanism in its first inception, and of the fine character of Grostête, who appreciated the order. Now this Grostête was intimate with Leicester. They were much attached friends. It exalts Leicester that he should possess and cherish the friendship of a man like Grostête. "To the blessed Robert of Lincoln," says the chronicler who continued Matthew Paris, "did the Earl of Leicester steadfastly adhere." Under his counsel he attempted arduous enterprises, ventured on uncertain paths, and brought imperfect schemes to completion. For the remission of sins, so it is said, the bishop bade him enter upon the cause for which he contended unto death. Some tell us that the bishop once laid hands on the first-born son of the Earl, saying to him, "My dear child, thou and thy father will die in one day, by the same kind of death, struggling, however, for righteousness and truth."

"From such testimony," we may gather, says Mr. Maurice, "how very sacred the cause in which Leicester was engaged appeared to the most earnest men of his age. The words in which the chronicler I have quoted sums up his lamentations for Leicester, after his fall at Evesham, expressed, no doubt, the feeling of those who had the best education of the time. 'Thus,' he says, 'did this magnificent man conclude his labours—a man who gave not only all he had, but his own self, to relieve the oppression of the poor, and to defend justice and the right of the kingdom. For his knowledge of letters he was worthy of all honour; in the divine offices he was assiduous; he was frugal, faithful to his word, severe in countenance, constant in his prayers, reverent to his teachers, giving his nights to watching more than to sleep.'"

Such are the characteristics of the opening only of Mr. Maurice's book, "The Workman and the Franchise," of which we may say more, but have already said enough to induce our readers to look into its pages.

David Wingate, the Collier-Poet.

That poetry is popular with the working man is a grand fact. To prove this, we have only to refer to those beautiful old English ballads—historical and legendary—which have been handed down from generation to generation as priceless heirlooms of the great family of toilers. And a lover of poetry the working man will always remain, as surely and so long as his love of honest work continues. A life of honourable labour is in itself a poem; barren indeed, it may be, of the epic, but fraught with the humbler yet no less heart-stirring incident of the idyll.

True, the working man cannot, as a rule, taste the delights of classic poetry, or appreciate the artificial finish and sentiment of drawing-room verse; but who can deny that the poetry of Nature—the life without and the life within—strikes a deep and fibrous root in the warm and fruitful soil of his strong spirit?

The working man loves that poetry which, like himself, is genuine and manly. He cannot love that which merely tickles the ear, but he will joy in and treasure up that which touches his heart, and unlocks the vent of his sturdy emotions. Happy the one or two minstrels who possess this master-key, and use this great power to a noble end. These, moreover, chiefly belong to the class themselves, and have found amidst the clods of daily toil and struggle up the rugged pathway of their lives, the sweetest and fairest of perennial flowers, which they have gathered to cheer and encourage the hearts of their brother toilers, and which, when they have reached their journey's end, they will leave behind them, as a rare yet common legacy to the bees of a later day. One of this goodly brotherhood, whose name and title heads this paper, has presented to us a second garland of such blossoms, fresh with the dews and ripe with the fragrance of living nature.

We feel sure that every reader of this paper will join with us in saying, "Welcome again, David Wingate!" and in thanking him for his sweet and touching idyll of "Annie Weir," who, in the eyes of her lover, Reuben, a collier,

"Was fairer far
Than the gowan or the star,
In the green glades o' earth or the blue o' heaven,
And gentler than the dove."

Surely this description is of some sunny-eyed, bright-browed, rosy-cheeked, ruddy-lipped rustic maiden, and not of a coal-begrimed, coal-burdened, collier-girl, the essentially masculine nature of whose work compels her even to forego much of the dress which woman wears for the closer and less elegant garb of a man! Reuben tells us that Annie and he worked in the same mine, and also that—

"She was nae seventeen,
But at work she lang had been,
And up the weary stairs wi' her coal-creel laden,
Day by day, wi' trembling limb,
In the twilight dim,
For her frail old father's sake, clamb the peerless maiden.

"That her silken auburn hair,
Snowy hauns and face so fair,
Should be daily soiled sae sair I aye was mourning;
But my Annie at her wark,
Aye as lichtsome as a lark,
Gaed singing to the stair, and sang returning."

The incident of the story is as follows:—An irruption of water takes place one day in the mine. Annie Weir is on the stair, and out of danger; but seeing that Reuben is not amongst the rest who are making their escape, with an heroic self-forgetfulness she flies to seek and acquaint him of the peril. They run together towards the stair, but are met by the "black and stoury flood," and, seeking in vain for an outlet, return to the former place of danger.

"We didna tear our hair,
But it surely was despair
That made us ither's hauns sae wildly tak';
For our heavy hearts aye sunk
As wi' hollow, dismal clunk,
The water slowly rose and drove us back."

Thus for three long days the lovers wait in hunger and darkness, and at length, just as the soul of Annie seems passing away beyond the earth and beyond the skies, they are rescued by the searchers, who have been all this time hard at work digging through into the dark prison. Annie revives, and she and Reuben are wed; but Annie's spirit, having once pruned her wings for flight on the threshold, does not long stay here, and at the end of a year her body is laid beneath the churchyard turf; "and, oh!" Reuben concludes, "that we were ance again thegither!"

Such a story is entirely fresh and new, and will, we should think, be long remembered and re-read by the people, who will surely feel grateful to the collier-poet for investing with poetic interest and beauty the rough and gloomy scenes of a miner's life. Throughout this and other poems which we have not space specially to notice, it is not difficult to trace the hand and heart of a genius, albeit one of a humble calibre, who sings true heart-songs, and gives fair promise of still sweeter strains.

THE LONDON FEMALE SCHOOL OF ART.

This school, originally the "Female School of Design," was established by Government at Somerset House in the year 1842-3, but from want of accommodation was removed to adjacent premises in the Strand, and, for a similar reason, was afterwards transferred to Gower Street in February, 1852. On the reduction of Government aid, in 1859, it was again removed to 43, Queen Square, and placed under the charge of a committee of management, with the view of establishing it on a self-supporting basis.

The object of the institution is twofold:—1st. Partly to enable young women of the working and middle class to obtain an honourable and profitable employment. 2nd. Partly to improve ornamental design in manufactures by cultivating the taste of the designer. Most of those who come to the school live at too great a distance from South Kensington to be able to attend there, while there is no other school in London, exclusively for females, in which teaching is given for the whole day, on five days of the week, or in which the instruction is so ample, and the range of subjects so extensive.

The general course of instruction comprises—geometrical drawing and perspective; elementary free-hand drawing from the flat and from the round; shading from the flat and from the round; drawing from solid models; figure-drawing from the flat, from the round, and from the life, including anatomical studies, and drapery; wood-engraving; painting in water-colours, tempera, fresco, and oil, from examples of ornamental art, from nature, landscapes, animals, foliage, flowers, fruit, &c.; exercises in composition, and original designs for decoration and manufactures. The teachers of the school hold full certificates from the Science and Art Department.

In a recent report the committee state that they have purchased the freehold premises situate at 43, Queen Square, and erected a noble gallery, which may compare with any studio in London for space, light, and ventilation. They have also thoroughly remodelled the entire house, and, by raising the roof, they have converted the upper storey into a spacious and useful elementary class-room. The establishment is now capable of accommodating from 150 to 200 students. To encourage the objects of the school, Her Majesty the Queen has signified her intention to contribute £10 annually towards the foundation of a scholarship of £20 per annum for the students of this school, to be called "The Queen's Scholarship," and the committee are most anxious to raise a permanent fund in order to carry out the gracious intention of Her Majesty. Applications for admission, prospectuses, or any other information, should be made at 43, Queen Square, Bloomsbury.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; John Stuart Mill, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; and the Rev. J. Begg, D.D.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MAY 12, 1866.

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The Victory in Parliament.

The great Reform Division which recently took place in St. Stephen's must be regarded as a victory of the working classes. It is they who have been on trial during the protracted debates which we have chronicled in these columns. The Franchise Bill was objected to because it proposed, for the first time in English history, to make the working class a political power in the State. They have always been the industrial power—they have long been a social power; and the end must be that they will become a political power. Everybody sees this. Many are glad of it—others fear it. Already Lord Cranbourne talks of the people as the future sovereign, and it is but natural that there should be inquiry into the character of the new king. We believe His Majesty will prove quite as wholesome and sensible a king as any one we have seen of late years in Europe. There are many reasons for this belief on our part, some of them extremely cogent. The new *régime* is not one to be feared. Its powers will not be suddenly acquired, but by degrees, involving the preparation necessary.

Some thirty years ago the middle class attained their kingship in this country, with great advantage to the progress, security, and satisfaction of the State. Liberty has increased, government has improved, the institutions of the country are more respected, and even the Crown commands more of the popular affection than it ever enjoyed before. Every one of these advantages will, we believe, be extended by the accession to power of the new monarchy of the people. Reasons numerous and sound can be given in support of this opinion.

There has been great criticism of the character of the working class of late: so there was of the middle class formerly; and this difference has been clearly established now that the character of the working class in 1866 stands higher than that of the middle class in 1832. The people are better known now than the middle class were then. They are better informed also. The Press, which spoke with a hundred tongues weekly, and not very intelligibly at that time, now speaks with a thousand tongues daily, with ten thousand tongues weekly, and with a degree of plainness, fulness, and explicitness unknown, unimagined, and indeed impossible in the old pre-Reform Bill days. It cannot be said that the press may speak and no one hear. It would not and could not continue to speak unless the public did hear. It cannot be said that the public may hear and not regard. They have regarded. The cotton famine tested that. The vast, unknown quantity, which so terrifies the speculative politician, passed through a fearful and protracted temptation, and came out upright. None hesitated, and none fell. The great bulk of the people, therefore, may be trusted. The middle class of 1832 had never given such proof of fitness as this. The great interests of industry, therefore, are entitled to political representation.

The ninth Report of the Trustees of the National Portrait Gallery has, by command of the Queen, just been presented to Parliament. The Report itself is addressed to the Lords of Her Majesty's Treasury. It states—"In this year, as in the preceding, the trustees gave directions to open the apartments during the first three days of Easter week, and have again, as on former occasions, been highly gratified at the results."

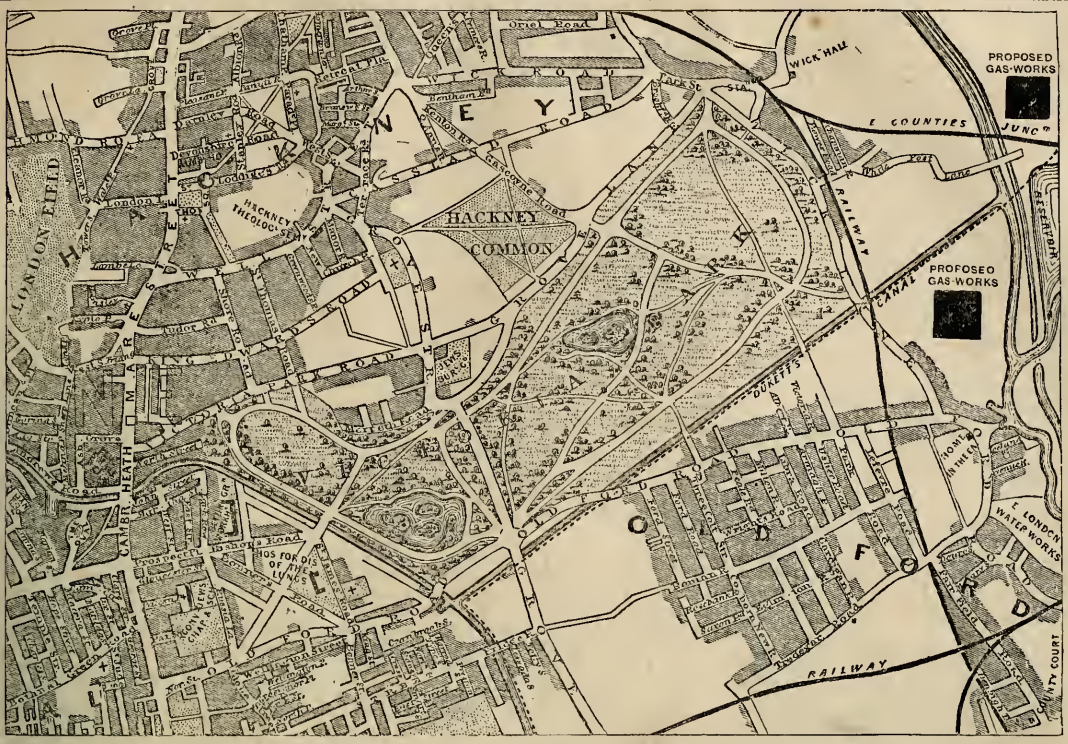
Of Easter Monday the secretary states in his report:—"Notwithstanding the increased number of visitors, everything was remarkably quiet; people spoke in a low tone, and were extremely well-behaved." And of Easter Tuesday:—"I observed to-day rather more working men in their rough clothes than yesterday. Not one attempt has been made to touch the pictures or handle the written tablets. The care which they all take of the printed lists as they go down stairs, by folding or rolling them up and putting them in their pockets or bags, shows that they value them. People were all remarkably quiet." This is independent, timely, and relevant testimony of weight.

Lord Cranbourne, in the late debate, affected to modify the accusations made against the people. He was disposed to admit that their nature was as good as that of any other class, but that, being poorer, they were more exposed to temptation. It has been well answered by the *Daily News*, that all poverty is relative. A man is poor when his income falls below his expenses; and in this sense middle-class men or lords may be, and often are, poorer than the generality of working men. But there is a yet more conclusive answer: The people may be pure as a class, however tempted. Of this Lancashire may be cited in proof. The whole population were poor; their income was entirely cut off; they were subject to serious and protracted privation; strong temptation was at hand; they needed only to clamour to the Government to take a certain political step, and relief would arrive. They were besought in every way to do so, and they steadfastly declined. There is an end, therefore, of all charges against the unfitness of the populace to exercise political power.

Mr. Disraeli laboured in his speech, and was for a long period ineffective; he seemed to lose at times the thread of his argument, until he took up his wonted weapon of invective, when he became fitfully brilliant. The purpose of this great effort was to summarise the direful consequences of admitting the working classes to representation in that House. Eloquence, scholarship, genius, and everything else with a dash of mortality in it, is to expire then. We are not quite so sure of this. Mr. Mill, Professor Fawcett, Mr. Hughes, may be taken as examples of the men the working classes would send, and, indeed, have sent, not to mention Mr. Layard, Mr. Stansfeld, and others. On the other hand, Mr. Gladstone, as boldly as generously, avowed that he thought that it was desirable to have working-class representatives in that House. We do not pause to say what changes this implies in Parliamentary arrangements. Elections must be simplified and rendered less costly. How purely working-class members are to be enabled to attend on Parliamentary duties, expensive as those duties now are, are questions upon which we do not enter. We are only concerned to notice now that the House of Commons has arrived at the conviction—which Mr. Gladstone so eloquently expressed—that working-class members are destined ere long to appear there. The vast industrial interests of the people entitle them to this power of self-defence. Pauperism must cease among their class; their honour will demand it when the class enters Parliament. They can clear their way and pay their way, as the middle class have done. The Chancellor of the Exchequer evidently feels this truth. His great speech was brilliant evidence of it. His earnestness was never betrayed in more thrilling tones; his language was swift, impassioned, glittering; his sentences had a simple, compressed energy, unusual with him; and when he raised his hand over his head, as he spoke of the banner that the people would bear, perhaps not to an easy, but to certain and not distant victory, it vibrated with emotion. His manner was so changed and inspired, that any one who had seen at that moment only would scarcely have known him. When it is considered that the House of Commons contained, within two, the greatest number of members who ever divided on a public question, and that the majority decided in favour of a Franchise Bill—the first that ever proposed to admit the working classes to political power by the direct action of their own representatives—the memorable division was in every sense a victory of the people. The Government who have thus made themselves the defenders of the working class will not resign, nor dissolve, nor fail.

Shall Victoria Park be Destroyed?

Has it come to this—that, after all the agitation about sanitary improvement and progress, we are to have several huge gasometers set up in Victoria Park, or so near to it as to impregnate it with vile sulphurous fumes? People used to be afraid of gas—they feared its explosiveness. The subtle, hidden enemy was everywhere, and no one knew when it would make its power felt. Science and mechanical skill have allayed these alarms, and we dwell in security with gas-meters in our cupboards,


PROPOSED GAS-WORKS
E COUNTIES JUNC.
WICK HALL
HACKNEY COMMON
PROPOSED GAS-WORKS
LONDON FIELD
HACKNEY THEOLOGICAL SEMY
CAMBRIDGE HEATH
HOMERTON
E LONDON WATER WORKS
RAILWAY
CANAL
DUKE'S
Oriel Road
Lark St
Bethnal Pln
Hackney Rd
Cambridge Road
Mare Street
Lower Clapton Road
Upper Clapton Road
Clapton Pl
Lower Clapton Rd
Upper Clapton Rd
Dalston Lane
Kingsland Road
Hackney Road
Cambridge Heath Road
Bethnal Green Road
Bow Road
Old Ford Road
Victoria Park Road
Grove Road
Tudor Rd
Lea Bridge Road
Lea Bridge Rd
Hackney Wick
Bow Common
Bow Lane
Bow Bridge
Bow Church
Stepney Causeway
Stepney Green
Mile End Road
Burdett Road
Commercial Rd
Commercial St
Bethnal Green Rd
Brick Lane
Cambridge Road
Hackney Road
Kingsland Road
Dalston Lane
Mare Street
Lower Clapton Road
Upper Clapton Road
Clapton Pl
Lower Clapton Rd
Upper Clapton Rd
Dalston Lane
Kingsland Road
Hackney Road
Cambridge

CO-OPERATIVE MANUFACTURING ASSOCIATIONS.

To carry on such undertakings successfully, requires not only great skill and judgment on the part of the managers, but great forbearance and a strong spirit of subordination on the part of the capitalist workmen, who have to submit themselves to the control of those who are their own paid servants. That they have often been found deficient in the latter qualification is unfortunately but too plainly manifested by the lamentable shipwreck of some of these establishments on this rock. For instance, a mill at Padiham was forcibly entered by some of the operatives, who tore the cloth from the looms and damaged the machinery, because they could not have the overseers they chose; the concern was thriving at the time, and could have easily borne the loss, but as some of its funds were borrowed, the creditors, fearing its safety, came down for their claims, and made it bankrupt. However, it is not unnatural to expect that these qualities of subordination and forbearance will be duly developed in time, as appears to have been the case already in Rochdale.

On the question of whether the requisite skill and judgment can be found in the managers, who are themselves frequently men from the ranks of the operatives, it is allowable to speak with more confidence. It appears that the capitalists who are owners of the large mills perform little or no part of the duties of supervision or management in person, but depute all to their hired subordinates. Mr. Cooper, one of the managers of the Rochdale Pioneers Society, in a letter to the author on this subject written some years ago, observed: "Persons acquainted with the manufactures of this district know that, as a rule, the employer does little more than give a general oversight to his business; the rest is done by the workers, including those who buy the raw material and sell the manufactured article, the managers, overlookers, &c.: and if these can manage a concern for a capitalist, can they not do it for the workers, who by their united subscriptions become the capitalists also?"

Supposing this condition to be fulfilled, and that a Co-operative manufactory is fairly started, it possesses one great advantage over similar industrial undertakings conducted by private capitalists, namely, the greater energy which, owing to the interest which each co-operative takes in the amount and excellence both of his own and his neighbour's work, will necessarily accompany the exertions of all engaged in it. Those who are accustomed to an agreeable variety in their occupations cannot perhaps realise the exhausting monotony of the great majority of mechanical employments: the interminable rows of bricks, the everlasting piles of mortar; the endless length of twist, and the boundless expanse of cloth spun and woven to the incessant din of clanking and crashing machinery, are scarce less disheartening than the eternal "seam and gusset and band, band and gusset and seam," which forms the "be-all and the end-all" of the poor seamstress's dreary existence. Is it, then, strange that the workman should at times become gloomy and discontented? that he should seek to dissipate the shadow which darkens his life by artificial stimulants, and vent his dissatisfaction in complaints against society and against his employer? But when you reflect that in addition to this, he is remunerated not in proportion to his diligence, but according to a fixed standard, can you conceive anything wanting to deprive him of all interest in his occupation, and render the primeval curse of labour a curse indeed? Even his very strength but aggravates his discontent, doomed, as he feels himself to be, to grind in the prison-house for the benefit of those he abhors. Now, here the principle of Co-operation steps in, and sheds a gleam of light over the dark pathway of his life: establishing a close connection between the remuneration and the toil, it robs the latter of half, nay, all its bitterness; for profit sweetens labour. Henceforth the trowel and the saw, the loom and the crank make merry music: they tell of comforts augmented, of competence realised, of independence gained. The mechanic goes to his work cheerfully, labours at it with zest, and leaves it with regret. Mere existence, which to every man in full health ought to be a joy, becomes so to him once more; he begins to feel some pleasure in the present, because he has some hope in the future. This, however, is to anticipate slightly another branch of my subject, namely, the benefit which these societies confer on the working classes.

There is one great difficulty with which Co-operative manufactories have to contend in common with all other mercantile undertakings, and which it was at one time thought would prove an insuperable obstacle to their permanent success, namely, that of commercial revulsions and the other accidental disturbances to which trade is liable. The extent of this difficulty is very clearly explained by Mr. Edmund Potter, President of the Manchester Chamber of Commerce, in a paper on Co-operation and its tendencies, read before the British Association some years since. Co-operation, he says, "would prove weakest during periods of depression, and could not find power of sustentation from a multitude of shareholders of the weaker capitalist class; whilst," as he adds, "it would not supply the power of purchase and expansion during these periods when the private capitalist invests and expands most profitably."

These views are pretty generally entertained among theoretical men, as well as those who, like Mr. Edmund Potter, are intimately acquainted with the phenomena of trade, and the conditions essential to success in commercial undertakings. But let us see what has actually happened during the great commercial revulsions which have occurred since co-operative societies began to be established. Has any large number of them failed? or rather, has any larger number of them failed than has occurred in the case of establishments in the same branches of business conducted by private capitalists? If any crisis was likely to try the strength of co-operative associations, the cotton famine was that crisis. Yet what is the fact? co-operative societies have come out of that terrible ordeal almost unscathed. Like other establishments, they have felt the pressure keenly; but from inquiries that I have made it would appear that such failures as have occurred, though doubtless hastened and aggravated by so terrible a pressure, are in no case attributable entirely to this cause. If, then, co-operative manufactories have survived this exceptionable, this unparalleled trial, may we not safely conclude that, if properly conducted, they will come safely through whatever others the future may have in store for them?—*From a Lecture by Professor Houston, Trinity College, Dublin.*

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*A Ramble among the Working Men's Clubs and Institutes.**

BY THE REV. H. SOLLY.

Being too much occupied just now to continue an examination of the causes that have led to the failure of several Clubs and Institutes, I give the following extracts from a report which will, I think, be interesting to the readers of the Working Man. A gentleman of great experience and intelligence, taking a tour in September last for the benefit of his health, kindly undertook to visit certain Working Men's Clubs, and furnished us with a report of his visits, from which the following passages are taken:—

"My first visit was to F——, an agricultural town with 3,000 inhabitants. The Club there is tenant of an old, inconvenient, and musty six-roomed house, for which it pays a rent of £12 a year, the taxes amounting to about £2 more. Three of the six rooms of the Club-house are used, respectively, as a reading-room, a conversation and smoking-room, and a games-room, and the other three are appropriated to the manager of the Club. The manager is a married man with a family. He receives no salary, but, in return for the performance of his duties as manager, lives rent free, and is supplied by the Club with coal and gas. He makes in addition some little profit, though only very little, by the refreshments which his wife is occasionally required to supply to the members of the Club. The number of members at the time of my visit, exclusive of honorary members, was 64, of whom 36 were quarterly members, paying 1s. per quarter, the other 28 being weekly members, paying 1d. per week. In addition to these 64 ordinary members, there were about 30 honorary members, two of whom had subscribed two guineas a year each, nine one guinea a year each, and the remainder from 5s. to half-a-guinea a year each. Last winter the number of ordinary members averaged 130, or twice the number there were at the time of my visit. The advantages which the Club affords its members in the summer season are (1) the use of a reading-room, tolerably well supplied with daily papers, and also with weekly papers, both London and local, and, moreover, having on its shelves about 100 volumes of books, of which the members can avail themselves at will; (2) the use of a room in which to smoke and talk; (3) the use of a room in which to play chess, draughts, or dominoes, and of the boards and pieces with which to play those games; and (4) the use of a *recreation-ground*, and of the necessary appliances for the games of cricket and quoits. The recreation-ground is a field of four or five acres, situated at about five minutes' walk from the Club-house, and the members of the Club have the privilege of using it on two evenings per week, for which the Club pays £2 a year. The Club does not possess either a skittle-ground or a bagatelle-board. The landlord of the recreation-ground would probably be willing to allow skittles to be played there, but some of the more influential honorary members, and also some of the ordinary members, have an objection to the introduction of that game. The same members also object to bagatelle. In winter, the Club offers a greater variety of means of amusement than in summer. Last winter a 'free-and-easy' was held weekly, and both a weekly discussion meeting and a weekly 'judge and jury' were attempted. The 'free-and-easy' was very successful indeed, but the 'judge and jury' was even more so, as long as it was kept up. Some of the honorary members, however, did not approve of it, and it was, therefore, very soon discontinued. The discussion meeting failed through bad management. During a great part of last winter 'Penny Readings' were given, in connection with the Club, once a week, and were eminently successful. The members of the Club were admitted free, the 'penny' being charged only to non-members. The readings were at first given in the Club-house; but the Club-house was soon found to be not large enough to accommodate all who wished to come to them, and they were afterwards held in the 'Savings Bank Room,' a room belonging to the Savings Bank of the town, and the use of which, for occasional meetings, is handsomely allowed to the members of any benevolent or other useful society, at no charge beyond that of the bare cost of cleaning and lighting—not amounting to more than 2s. per evening. In the case of the penny readings, this cost was paid by some of the honorary members, so that the whole of the receipts were clear profit to the Club. These profits averaged between 6s. and 7s. per week. One concert was also given last winter in connection with the Club, the singers and performers being some of them members of the Club and some of them not. The Assembly Room of the —— Hotel was hired for it, and the public were invited to attend on payment, the members of the Club being admitted free. Although the expenses of the concert amounted to over £2, a clear balance of profit remained to the amount of £1 5s. The Club also tried, last winter, the experiment of lectures, but it was not attended with any great success. Still less successful have been its few attempts at establishing *classes*. The most promising of these was an attempt at a singing-class, but the first meeting of this class in the Club-house was its last. It met one evening in the games-room (a kind of cellar under the conversation-room), but the conversation going on above so interfered with the singing, and the singing so interfered with the conversation, that everybody at once saw that a singing-class, under the circumstances, would not do. The class, however, is still in existence, and consists exclusively of members of the Club; but it has only four members, and it does not meet at the Club-house. In the summer it meets for practice on the top of a hill about a mile from the town, and in winter at the lodgings of one of its members.

"As regards the financial position of the F—— Club, the first point to be noted is that the Club is still in debt in respect of the cost of adapting and furnishing the Club-house at starting, three years ago. Last year, however, it reduced its debt from £60 5s. 3d. to £33 0s. 11d. If a similar amount of reduction can be effected *this* year, the debt, it will thus be seen, will thereby be nearly extinguished. So far, the reduction of the debt has been effected solely by *donations*, the current expenses of the Club swallowing up the subscriptions alike of the ordinary and of the honorary members, and not being wholly met thereby. The most liberal donor has been the Earl of R——, who gave £20 last year, and who has contributed most handsomely to the funds of the Club during each previous year of its existence. Until last year, the expenses of the Club exceeded its total income from subscriptions, and so had to be met in part out of the donations. A new committee, however, was elected at the beginning of last year, and its management has been more economical than that of its predecessor; and the result is that the subscriptions of its honorary and ordinary members together now just about meet its current expenses. *If the Club were out of debt*, therefore, it would not need to ask for donations; but, as its honorary members at present contribute more than half its total income from subscriptions, it would still be very far from being supported by its working-men members alone."

It will be noticed that the honorary members in this instance exercised administrative control in two or three matters of considerable importance to the well-being of the Club. I do not presume to say whether their decisions were right or wrong; but when we look to the rules of this

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* Continued from page 279.

Club, and find it was exercised, as in previously-mentioned cases, by means of a Gentlemen's or General Committee sitting and acting distinct from the Working Men's Committee, we need not be surprised that the Club has not been more successful. It has done and is doing decided good; but very little compared with what one would desire. It has sustained a great loss, moreover, in the death of one of its best friends among the gentlemen, whose kind and genial disposition greatly helped the movement at its outset.

Our friend's next remarks will be specially interesting to clergymen and other persons desirous of establishing or maintaining a Working Men's Club in *rural districts*.

"In imitation of the club at F——, a very interesting little Club (of whose existence, I believe, the Union is not aware) has been established at S——, an agricultural village, containing about 1,000 inhabitants, situated at about four miles from F——. This Club was started about eight months ago, chiefly by the efforts of Mr. ——. It has about forty ordinary members, nearly all of them agricultural labourers, each paying either 1d. a week, or 1s. a quarter, and either three or four honorary members, who have agreed to pay half-a-guinea a year each. The Club hires, at a rent of 3s. a week, two rooms in a little cottage, one of which rooms is used as a reading-room, the other being devoted to smoking and conversation. The furniture of the two rooms was completely paid for out of the first quarter's subscriptions, aided by donations to the amount of £2, and at the end of its first quarter the Club was entirely out of debt; but at the time of my visit to the neighbourhood it was in debt about £1. It possessed no library, no recreation ground, and no games, either indoor or outdoor, and its reading-room was very scantily furnished indeed. Many of its members cannot read, but some of those who can read are in the habit of reading aloud to the others. During its first quarter it devoted every Monday evening to a formal reading meeting; and on one occasion Archdeacon ——, who holds the living of S——, and on another the Rev. —— acted as reader. The most frequent reader, however, was the excellent secretary of the Club, Mr. ——. This little Club seemed to me to be eminently deserving of whatever recognition and assistance could be accorded to it by the Union."

It is very satisfactory to find, as we do in many rural parishes, that a social Club can be successfully maintained, if only two or three men of education and kindly feeling will devote themselves to conducting its operations. Of course it is vitally important that they should get the men themselves to do as much for its management as possible; and a great secret of all sucessful adminstration, of course, consists in obtaining the co-operation of efficient agents. But there must be a "head" in every enterprise.

"From S—— I went to C—— (an agricultural town with 7,000 inhabitants), in which town there is a very successful little Working Men's Club. It is accommodated in rooms connected with a very commodious and well-appointed hall belonging to the local Temperance Association. That association is very successful and energetic; and in the winter season lectures, concerts, and other entertainments are provided by it at very frequent intervals. The members of the Club have free access to all these, so that the Club has no need to provide entertainments for itself. As rent for the rooms it occupies, the Club pays to the Temperance Society only £4 a year, but it also pays £5 a year towards the salary of the Society's hall-keeper, who acts also as manager of the Club. A portion of the Society's building is open to the public during the whole of each day, except Sunday, for the sale, at the lowest remunerative prices, of teetotal refreshments, and from this department the members of the Club can be supplied at pleasure in their own rooms. These rooms, at the time of my visit, were only two—one used as a reading-room, and the other appropriated to games; but Mr. ——, to whose earnestness and liberality the Club is in many ways so deeply indebted, was contemplating adding to the building, at his own expense, a room to be devoted to smoking, &c. The Club possesses a library of 250 volumes, which are lent out to the members, and its reading-room is very amply supplied with newspapers and magazines. The number of ordinary members on the books at the time of my visit was forty-six, of whom twelve were in the habit of paying 1s. 6d. per quarter, and thirteen 6d. a month. The rest paid 1½d. per week. Last winter the number of members averaged eighty-one, and the Club-rooms, which are but small, were frequently crowded to inconvenience. The Club published its first annual report on the 1st of March last, when it had a balance of about £7 in hand. The total expenditure for the year had been £61 11s. 7d., of which about *one-third* was derived from the subscriptions of ordinary members."

Our friend speaks warmly of the good being done by the Club at C——, although the number of members, in proportion to the population, is certainly very small. But this is only one among many proofs, first, that we cannot always measure social and moral influences by numbers; and, secondly, that the benefits to be derived from Working Men's Clubs must not be expected to be appreciated rapidly or extensively for some years to come. Their friends and promoters may be thankful and hopeful, even though they have a much more up-hill work to do than they originally anticipated. The committee of the Club in question, in their first annual report, show that they well understand this, and "refer with pleasure" to their belief "that many of the homes of the working men have been made happier through its instrumentality." Thankfulness and hope need not diminish earnest effort after greater success, nor lessen a genuine desire to discover and avoid sources of error.

WORK IS NOBLER FAR THAN PLAY.

Make the most of ev'ry blessing,
Cultivate contentment here;
There are treasures worth possessing
For the men of ev'ry sphere.
Though thy lot in life be humble,
And thou toilest day by day,
Battle onward, never grumble—
Work is better far than play.

What tho' fortune crown thy neighbour?
Riches cannot banish care;
And there's dignity in labour
Which the idler cannot share.
Those who toil uphold the nation,
Keep its greatness from decay;
In each honest occupation,
Work is better far than play.

On the scaffold heav'nward climbing,
Deep within the mine below,
'Mongst the hammers loudly chiming,
And where molten metals glow—
In the fields where birds are singing,
On the vessel's deck so gay—
There are voices ever ringing,
"Work is nobler far than play."

W. Talbot.

LAW AND LABOUR.

Just at the present moment every fresh illustration of the anomalous condition of the laws which regulate the social relations of wealth and labour is more than usually interesting. Such an illustration—and that of the most pregnant kind—is furnished by the judges' arguments in the case of Unwin *v.* Clark, tried in the Queen's Bench last Saturday. We say the judges' arguments, for there was really a rather long discussion between the three justices—Blackburn, Mellor, and Shee—as to the interpretation of the existing laws regulating contracts between employers and artisans; and the judgment, unwillingly acquiesced in by Justice Shee, appears so unsatisfactory that we can only trust that the point will be speedily raised once more, and tried, as Justice Blackburn recommended, in the Court of Common Pleas. As almost everybody who is not an artisan of some sort or other is an employer of labour, the question is really important to us all. The facts of the case are as simple as possible, and there is no controversy about them.

A working cutler, named Clark, made a contract with Messrs. Unwin and Rogers—of whom it may be said that their penknives are in everybody's pocket—to work for them at certain wages for two years. Last November he refused to work any longer, except at advanced wages, and was accordingly convicted of a breach of contract, and sent to prison for three weeks. On coming out he still refused to work, was again prosecuted, and is now again convicted by a judicial sentence, which, as Judge Shee forcibly argued, is equivalent to an admission of the principle that a man may be kept in prison by repeated prosecutions and convictions for the whole time of his original contract, be it two months, two years, or twenty years. That upon any rational principle, as distinct from legal hair-splittings, the law of contracts should be thus interpreted is so "monstrous" an absurdity—as Judge Shee did not hesitate to call it, even while submitting to his brother justices—that we can hardly imagine that the present conviction can be sustained. The argument by which Justice Blackburn maintained that the man must be punished again and again is to the ordinary understanding simply amazing. If a man who has been sent to gaol for beating his wife beats her again when he comes out, of course he is again punished, *ergo*, argues Judge Blackburn, one single civil offence—namely, the breach of a definite agreement—is to be punished as if it were a criminal act repeated again and again after every fresh penalty. No wonder the real merits of the case were argued by the judges on the bench rather than by the counsel at the bar.

The practical conclusion of the whole matter is that there is an urgent call for a revision of the laws regulating the employment of labour. If the working man had as many wise friends as he has zealous friends and misdirecting leaders, it would not have been left to some future reformed Parliament to place the labourer and his employer on strictly equal terms in the eye of the law. If the mere possession of a vote is a benefit to the artisan, as we are told, how far larger a benefit would it be to him if there were no longer one law for the capitalist and another for the artisan! As the law now stands, the employer can punish the breach of a contract on the part of a workman by a heavy, and it may be a ruinous penalty; but no such punishment can be inflicted upon the employer if he is the breaker of the agreement. It is the case of bishops and curates over again. Whatever the misdemeanours of a rector or vicar, a bishop can only punish him by a regular legal process; and whatever the misdemeanours of a bishop or archbishop, nobody knows how he is to be got rid of. The curate, on the contrary, may have his licence withdrawn at the simple will of a bishop, who is not bound even to assign the smallest reason for the exercise of his despotic power. It is not, however, worth the while of any ambitious politician to make capital out of the woes of curates or working cutlers; and, at the same time, no one seems to perceive that it is in the existence of such real injustice that strikes take root and draw their vital power. Statesmen do not seem to see that so long as labour and capital combine rather as natural enemies than as natural friends, these incessant conflicts and combinations must necessarily be continued, paralysing the healthy action of trade, and inflicting sometimes irremediable mischiefs upon all concerned. And yet, setting aside the political aspects of the labour question, there never was a time when the establishment of perfect justice to all parties was more loudly demanded. More and more the relationship between labour and capital assumes the nature of a conflict, in which the sole practical question is as to which side is the strongest. Passion takes the place of sense, and the natural laws of supply and demand, which ought to regulate the distribution of profits between employers and employed, are perverted to the service of anti-social prejudices. And yet, in the meantime, by the quiet working of these laws, a complete equality of rights has been achieved by a class of labourers who, whatever else they can do, can certainly never strike or form themselves into trades unions. Cooks and housemaids are triumphant while the men of Birmingham and Sheffield are still toiling at a disadvantage; at least, we never heard of even the most revengeful of "mistresses" sueing a runaway servant girl for breach of contract, and getting her sentenced to twenty-one days' imprisonment. In every household one law is practically supreme. If you turn away your maid without a month's warning, you must pay her a month's wages. If she discharges herself within the month, she cannot claim any payment. If good servants are scarcer every year, it is not because they are unfairly used, but because, while servants become numerically fewer, there is a perpetual increase in the number of well-to-do families who want servants to wait upon them; and because, unfortunately, the machinery which has entered everywhere else into the manufacture of necessities has not yet achieved the cooking of our dinners or the sweeping of our carpets.—*Pall Mall Gazette.*

THE FACTORY OPERATIVES OF BRADFORD.

Mr. Redgrave, inspector of factories, in his annual report, says:—When I was in Bradford (in October last) I had some conversation with Mr. Poppleton, the certifying surgeon for the town, upon the subject of the physical condition of the factory operatives as compared with that of other operatives. Mr. Poppleton examines weekly more children and young persons than any other certifying surgeon in my district, and from his long experience and his judgment is well entitled to form a sound opinion. I asked him to give me, in writing, the result of his observations during the year; for he had paid much attention to the effect of employment upon health, as evidenced by the condition of the young persons brought before him in the factories, and he has sent me a very interesting report. He says:—"There has been a very large increase in the number of hands presented to me for examination during the past year. Several causes have been at work to produce this change; the principal one, in my opinion, being the large number who have left other employments for factory labour, such as machine makers, ironfounders, colliers, brickmakers, and other trades requiring greater physical

exertion than factory labour, or such as are exposed to more danger and discomfort. Another cause may have been that the heated state of the rooms in factories during the past summer has made the hands restless and indisposed to work the whole week, the high rate of wages enabling them to be careless in this matter. With regard to the hands introduced from other employments, by far the greater number come from machine shops, iron foundries, and collieries. I am happy to be able to report on the improved physical appearance of our factory people. Since hand-combing was removed from the dwellings of the operatives, their children have increased in health and size, and more especially so since good trade has raised the price of labour to a height never before known. They now surpass in appearance most other operatives, and are especially superior to workers in iron. All the children presented to me who have worked in machine shops or foundries are exceedingly pale, diminutive, and most pitiable looking objects, and altogether unfit for continuous work. The physical appearance of the collier is superior to that of the worker in iron, but the countenance of the latter is very expressive of the condition of mind which may be expected from the nature of the occupation." Since sending that report, Mr. Poppleton has given me the following account as an instance of what comes before him, and upon which his opinions as above expressed are founded:—"Yesterday I was at Messrs. ——, and on a batch of hands coming before me I selected one who appeared under age. On asking him where he worked last, his reply was at a machine shop. I remarked that his appearance would make one believe that he had worked in the pit. The lad at once replied that before the machine shop he had been a collier for three years, and that he was sure he was fifteen years old. So certainly do these employments stamp their effects on our young people. There was a few days ago a very severe accident from a machine shop of a child about ten, and he told me that he never worked less than from six to six, and sometimes till nine p.m. The physical exertion of these children is as great as the men."

This contrast of the effects of labour in iron works, as compared with the results of factory labour, which is under due restrictions, is very important at the present time, when so much attention is turned to the condition of persons employed in the metal manufacturing districts. The half-time system has been in existence at Bradford for years, several firms employing as many as 200 half-timers, some even as many as 400 and 500, and no town contains a better opportunity for the contrast between restricted and unrestricted labour than Bradford. In every part of my district there is a scarcity of hands, and partial strikes are taking place in separate departments in the mills. The certifying surgeons inform me that they are called upon to examine an increasing number of children and young persons desirous of obtaining factory employment, and a very large number of those presenting themselves are rejected as being under the prescribed ages. It is at a period like this, when the demand for labour is so active and the price of labour is so high, that the services of the certifying surgeons are of most value; for unless there were some certain check to the employment of children of tender age, who would be unequal to the work, a serious injury would be inflicted upon the young in a manufacturing district. It appears from the present scarcity of labour that if all the existing factories are to run full time there must be some great improvements in machinery, or the rate of wages must rise considerably higher than it is at present. In fact, this is beginning to be felt severely in some places, and the introduction of machinery is progressing.

A manufacturer writes to me:—"Had we not latterly introduced a large amount of machinery to substitute for hand labour, we should have been in serious difficulty;" and a short time since, speaking with an eminent manufacturer upon this subject, he quoted two instances in his own works that had occurred within a week, showing how rapidly the wages were advancing. One application was from the woolsorters, who applied for an increase of 3s. and 2s. per pack. They founded their claims upon the increased price of provisions, clothing, rent, &c., and they added:—"If you direct your attention to the general advance in wages of other branches of labour, you will find that we are not sufficiently remunerated to maintain that social position in society we heretofore have done." The second application was from the warp twisters, who in seeking an advance concluded with the following N.B.:—"We expect a satisfactory answer to this on or before the 18th instant (two days after the date of the application), or else you must look out for some fresh men, for we shall do no longer, except you will give it us." The great increase in wages has also had an effect upon the supply of labour by rendering some classes of operatives independent of their children's earnings, who are consequently not sent into factories at so early an age as formerly. Mr. Poppleton, of Bradford, has observed this, and he attributes some portion of the diminished production of goods to this cause; he says upon this subject:—"I have also to report on the great scarcity of hands during the past nine months, caused in some measure by the parents withdrawing their children altogether from work. This remark applies to the better class of factory operatives, the high rate of wages which they have at command enabling them to dispense with their children's earnings (once so important to them), and to send those children continuously to school. This scarcity of hands has led to the stoppage of so much machinery as to diminish by one-fifth or one-sixth the production of the manufactured goods. Night work has been more common during the past year than it has ever been since the passing of the Factory Act; and, owing to the scarcity of hands, masters have been glad to employ for night-work young men who can command from 17s. to 20s. per week, instead of the ordinary pieceers from 7s. to 9s. per week."

THE BOOKS THAT WORKING MEN READ.

The fourth annual report of the Blackburn Free Library and Museum has just been published. From it we learn that during the year of 365 days, commencing on the 15th of February, 1865, and ending on the 14th of February, 1866, the library was open 304 days and closed 61 days. The total number of volumes consulted and circulated in the year was 34,266. The number last year was 34,497. There is a slight increase (181) in the issues of the lending department, and a small decrease (412) in those of the reference department. The relative proportions of the various classes of books called for do not materially vary. The accompanying table will furnish the exact classified statistics:—

	Theology and Philosophy.	History.	Politics and Commerce.	Sciences and Arts.	Literature and Polygraphy.
Reference .	63	1,024	95	1,665	2,955
Lending .	293	4,880	211	1,370	21,709
Totals .	357	5,904	306	3,035	24,664

The largest monthly issues were in March (3,229), November (3,334), and January (3,248); the smallest was in July (2,359). Below is shown the average number of issues of each volume in the five classes. The table refers only to the lending library:—

	Vols. in lending department.	Issues during year.	Average issues per volume.
Theology and Philosophy .	123	294	2½
History	1,912	4,880	2½
Politics and Commerce . .	125	211	1¾
Sciences and Arts	482	1,370	3
Literature and Polygraphy .	2,161	21,709	10
Totals	4,803	28,464	6

A few examples are appended of the number of times certain volumes taken at hazard have been borrowed during the year from the lending department:—Theology and Philosophy: Bunyan's Pilgrim's Progress, 18; Taylor's World of Mind, 19; Coleridge's Method, 11; Paley's Natural Theology, 6, Plato, 4. Biography: Charlotte Brontë, 16; Wellington, 14; Mary Stuart, 14; Carlyle's Cromwell, 12; Heroes of Europe, 13; Wraxall's Criminal Celebrities, 13; Macaulay's Biographies, 10; Forster's Life of Goldsmith, 10; Working Man's Way in the World, 9. Travels: Adventures in Borneo, 19; Irving's Captain Bonneville, 39; Chaillu's Equatorial Africa, 18; Ballantyne's Hudson's Bay, 13; Hertzen's Exile in Siberia, 14; Russell's Diary North and South, 11; Borrow's Wild Wales, 10. History: Macaulay's England, 13; Traditions of London, 13; Story of the Peninsular War, 11; Bede's Ecclesiastical History, 14; Thiers's French Revolution, 11; Baines's Cotton Manufacture, 11; Kinglake's Invasion of the Crimea, 8; Chambers's Scotland, 8. Politics: Brougham's Political Speeches, 6; De Tocqueville's Democracy in America, 8; Mill's Representative Government, 8; De Lolme's British Constitution, 7; Our Homeless Poor, 13. Science: Mathematical Science (Orr's Circle), 10; Facts for Everybody, 16; Timbs's Curiosities of Science, 10; Magic of Science, 11; Triumphs of Invention, 9; Carpenter's Animal Physiology, 7; Science Popularly Explained, 8; Lyell's Antiquity of Man, 6. Poetry: Burns (two copies), 30; Addison, 13; Coleridge, 13; Shelley, 11; Wordsworth, 6; Virgil, 7; Bloomfield, 15; Songs of England, 14; Tennyson's Enoch Arden, 13; Southey's Joan of Arc, 11; Byron's Hours of Idleness, 10; Bulwer's Dramas, 11; Moore's Irish Melodies, 10; Hood's Whims and Oddities, 16; Sheridan's Dramas, 6. Essays and Miscellanies: All the Year Round, 22; Family Friend, 18; De Quincey's Confessions, 15; Lowell's Biglow Papers, 16; Swift's Gulliver, 18; Five Hundred Anecdotes, 16; Cassell's Elocution, 17; St. James's Magazine, 15; Sala's Accepted Addresses, 14; Hannah More's Miscellanies, 10. Prose Fiction: Eton School Days, 45; Marryatt's Jacob Faithful, 33; Kavanagh's Daisy Burns, 30; Wilson's Tales of the Borders, 28; Braddon's Eleanor's Victory, 43; Collins's Woman in White, 44; Trollope's Barchester Towers, 21; Yonge's Hopes and Fears, 22; Ainsworth's Crichton, 32; Hugo's Les Miserables, 20; Sala's Captain Dangerous, 21; Scott's Rob Roy, 36; Dickens's Pickwick, 35; Wood's East Lynne, 44; Lever's One of Them, 35; Oliphant's Harry Muir, 23; Disraeli's Alroy, 19.

The borrowers' cards granted to the 14th February, 1865, numbered 2,647, and in the present year the additional cards taken out have been 491. The total number of borrowers now on the books is 3,138, 2,652 of whom are males, and 486 females. The fines which have been imposed during the year for overdue volumes, &c., have produced the sum of £15 0s. 6d. Eight volumes which have been issued during the year are now considerably overdue, but these, with one or two doubtful exceptions, are believed to be recoverable. Five volumes have been lost, and replaced by the losers. Some thirty volumes have only been returned on the librarian's application.

Things Talked About.

Every Englishman who lives by the work of his hands takes an interest in Mr. Gladstone's Budget, because he knows that a large portion of the surplus revenue—and Mr. Gladstone generally contrives to have a surplus—will be devoted to the lightening of some impost which has hitherto borne heavily on those who have little to spare. That the reductions this time are small, is owing to the fact that the surplus in hand would not allow the Chancellor of the Exchequer to deal with the larger claims pressed upon him with such pertinacity. So the consideration of the duty on malt and the sugar duties must be postponed, though, doubtless, only for a time. In the meanwhile the policy is pursued of getting rid, or reducing, various small imposts or inequalities which cause considerable trouble, and lead to many petty frauds. Pepper will, supposing the Budget to be accepted, henceforth be free of duty, and it may not be worth the while of the small dealer to adulterate it with the odious rubbish now so commonly employed. The duty on timber is to be abolished, with what effect on the building trades we must wait to see. Each previous reduction of the duty—at one time as high as 56s. 6d. a load, and now only 2s. and 1s.—has been followed by an immense increase of consumption, and the rule will probably hold good now. An equalisation of the wine duties promises to make the light, nutritious wines of Burgundy, Hungary, and Greece still more accessible to persons of moderate means. The remainder of Mr. Gladstone's scheme is of less immediate interest, demanding for its comprehension a wider acquaintance with financial science than falls to the lot of most people. But one fact is easily recognisable, and that is that the scheme is framed in accordance with high principle, and not with mere expediency.

A general meeting of the Art Workmen's Association of Manchester has been summoned to consider a scheme proposed by Sir J. Kay Shuttleworth, Dr. Fairbairn, Mr. O. Heywood, and others, for holding a general exhibition of all the principal manufactures in Lancashire. A wise suggestion has been made that it would be better to defer the exhibition until the year after next, when the Paris Exhibition will have terminated.

We are sorry to hear that the announcement that the Sheffield dispute had been settled is premature.

Tempted by the revival of trade in Lancashire, a number of "foreigners," as they are called—workpeople from other districts of England who have been temporarily employed in the cotton manufacture before the famine—have returned to Bacup and other towns where operators are in demand, and some of the mills are running short time, not for want of work, but of hands. We regret to hear that some of the old hands object to the presence of these "foreigners," an unreasonable objection when there is plenty of work for all.

The Wolverhampton Chamber of Commerce has approved of the passing an Act respecting the employment and education of children in factories, with certain reservations, which may be thus summed up: "That no child under ten years of age should be employed; that children between ten and thirteen years of age should not be employed for more than half a day, and should be required to bring a certificate of attendance at school the other half; that there is no necessity for the interference of Government with the hours during which young persons between thirteen and eighteen years of age and women are employed; that the limitation of age at which young persons may be employed in night sets should not be above fourteen; that no such Act (as the Factory Act) should be introduced, unless it be applied to all places in the United Kingdom in which trades of the same kind are carried on;" and "that it should be distinctly understood that all workshops, however small, in which the affected trades are carried on, must be considered factories."

From the same town we hear that a code of arbitration rules, specially applicable to the plastering trade, have been agreed to. There is already a court of arbitration for carpenters, composed of twelve arbitrators—six men and six masters; and now the plasterers have agreed to establish a similar court; and both courts are, there is no doubt, rendered still more useful by the introduction, at the suggestion of one of the men, of a provision for conciliation with a view to make, in many instances, even arbitration unnecessary. In minor matters, and in personal dispute, the man will choose one of the trade arbitrators for the men, and the master one of those for his class, and they will meet, hear the case, and if they find they cannot conciliate the disputants, then the whole of the trade arbitrators will be called together by the umpire to decide the matter.

The fifteenth annual report of the Amalgamated

Society of Engineers, Machinists, Millwrights, &c., has been recently issued, and shows that during the year £28,500 was added to the previously accumulated fund. New members numbered 3,583, and at the end of December there were, in all, 30,978 members. The accumulated fund amounted to £115,357 13s. 10½d., although the expenditure on the year had been £49,172 6s. 2d. About seventy of the branch societies have deposited £24,000 in Post-office savings banks, and the general secretary says that "many more will avail themselves of this privilege." Within the year members out of employment received £14,070 4s. 9d., £13,785 14s. 9d. was paid to those who were sick, and £5,184 17s. 4d. to superannuated members. Such is the working of one of the largest and most influential of trade organisations, with nearly 40,000 members, and an available fund of nearly £116,000 safely invested.

Sir Morton Peto presided, a few evenings since, at the third triennial festival of the Railway Guards' Universal Friendly Society. Railway servants are peculiarly liable to be disabled from work; and the value of such a society can scarcely be too highly estimated. Since the establishment more than £1,000 annually has been devoted to the relief of the members.

The travelling public had been led to expect a great boon, for the London and North-Western and the Manchester, Sheffield, and Lincolnshire Railway Companies advertised that their fares between London and Manchester had been revised and reduced, the reduction to take effect from the 1st of May. The reduction has taken place, and it amounts to this—first-class passengers between London and Manchester will be charged *sixpence* less; second-class, *nothing;* third-class, *twopence!* There is a boon to talk about!

Another reduction will be more readily welcomed. London milk will be cheaper. Since the outbreak of the cattle disease, London dairymen have received milk from the country, at the wholesale price of 2s. and 2s. 4d. the barn gallon of eight quarts. The price is now lowered to 1s. 8d. and 1s. 10d.

Co-operative Intelligence.

Wallsend.—At the fifteenth quarterly meeting of this society, the report read showed that goods to the amount of £2,202 10s. 4d. had been sold during the quarter, leaving a net profit, after paying all expenses, of £261 6s. 11½d., which was disposed of as follows:—£12 9s. 4½d. to reduction of fixed stock, £14 18s. 6d. interest on £1,194 £1 members' shares, at the rate of five per cent. per annum; £8 2s. 8d. to reserve fund, and £225 16s. 5d. dividend on members' purchases, at 2s. 3d. in the pound, non-members being returned five per cent. on their purchases at the time of making them. The number of members on the society's books is 284, being an increase of seventeen during the quarter.

Backworth.—At the ninth quarterly meeting of the Backworth Industrial Co-operative Society, the secretary, Mr. John Adams, read the quarterly report, which showed that the society was in a very prosperous condition. The sales at the store had amounted to £1,824 1s. 4d., being an increase of more than £400 over the preceding quarter, and after the payment of all expenses, a dividend of 2s. in the pound was declared. During the quarter six members have left the society owing to removals, and thirty-six have entered, making a total of 182 members on the books.

Sheffield Improved Provident Co-operative and Industrial Society (Limited).—The first annual balance sheet and general statement of the transactions of the society for the past twelve months show the amount of cash receipts for goods sold to be £2,417 15s. 2d., and the net profit (after allowing interest at the rate of five per cent. on all paid-up shares, reduction on the fixed stock commencing the second half-year, at the rate of five per cent.) to be £82 7s. 6d., in the disposal of which the committee recommended £5 to be laid aside to start a reserve fund, 6d. in the pound for non-members' purchases, 7d. for the first and 1s. 3d. for the second half-year on members' purchases, leaving a balance of £9 4s. 4d. to meet outstanding cheques.

Dodworth, near Barnsley. Establishment of a Cheap Meat Association.—A tea-party was recently held in the Town's School-room, Dodworth, for the purpose of establishing a Co-operative meat store in this place. After tea a public meeting was held, under the presidency of Mr. Joseph Mitchell, schoolmaster, who briefly introduced Mr. J. C. Farn, of Eccles, near Manchester, who gave some advice on the object before the meeting. It is contemplated to open a store for the sale of butchers' meat as soon as the necessary arrangements can be made. The shares are to be £5 each. A meat store has also been opened in connection with the Barnsley British Co-operative Society, and on the first day the supply fell short of the demand, although upwards of 120 stones of meat was provided.

Stalybridge.—The twenty-seventh quarterly report of the Stalybridge Good Intent Industrial Society has just been issued, in which the committee congratulate the members upon "the steady and increased progress of the stability of the society," and they hope that all true, earnest, and well-wishing members participate in the same feelings. They are confident, now that the great crisis is past, still greater results may be realised by the members purchasing all they can at the society's stores, and unless they do so they cannot possibly receive or reasonably expect to realise the same benefits as members belonging to similar societies who are heart and soul in the great work of social redemption. The dividend for the quarter is 1s. 3d. in the pound to members, and 1s. in the pound to non-members.

Turton. Egerton Co-operative Society.—At a meeting of the newly-established Co-operative Association at Egerton, the secretary, Mr. C. J. Kenyon, read the first quarterly report, representing the financial account for the quarter ending 20th March, from which it appeared that the profits for the quarter amounted to £125 16s. 5½d., which, after allowing for depreciation of fixed stock and paying interest on non members' claims, allowed a dividend of 2s. in the pound on members' purchases, and 8d. in the pound on the purchases of non-members; the committee recommending the balance, amounting to £15 19s. 4d., to be carried to the reserve fund. The cash account showed the following result:—Debits: To cash received for contributions, £418 3s.; entrances, £6 7s.; sales of goods, £1,304 11s. 6½d.; for sundries, 12s. 9d.: total, £1,729 14s. 3½d. Credits: By cash paid for goods, £1,495 1s. 2d.; rent and taxes, £17 0s. 5d.; wages, £31 14s. 9d.; withdrawals, 21s.; carriage, £14 18s. 9d.; sundry expenses, £2 4s. 6d.; stock-taking, 12s.; fixed stock, £101 15s. 6½d.; cash to Rochdale corn mill, £5; and balance in treasurer's hands, £60 6s. 2d.: total, £1,729 14s. 3½d. The profit and loss account showed: Interest on members' claims, £2 14s. 8d.; dividend on members' purchases, amounting to £1,011, at 2s. in the pound, £101 2s.; dividend on non-members' purchases, amounting to £96, at 8d. in the pound, £3 4s.; amount carried to reserve fund, £15 19s. 4d.; depreciation of fixed stock, £2 16s. 5½d., thus representing the quarter's profit at £125 16s. 5½d.

CO-OPERATION IN AUSTRALIA.

Sydney (New South Wales) General Co-operative Society (Limited).—At the thirteenth quarterly meeting of this association, the secretary read the report and balance sheet for the quarter ending 31st December, from which we gather that the society is progressing favourably; and, although a slight falling off was observable in the last, compared with the previous quarter, yet the profit made was somewhat in excess of that shown at the last quarterly meeting; and the report congratulated the members upon the fact that, although the working expenses were large in proportion to the amount of business done, yet, by strict economy and careful management, they were enabled, after defraying all expenses, allowing for depreciation and the usual 7½d. per cent. upon the capital, to pay a bonus of 1s. in the pound upon members' purchases.

General Information.

CLUBS AND INSTITUTES.

Social Meetings of the Working Men's Club and Institute Union at Exeter Hall.—The third of these interesting meetings was held on Wednesday evening last to consider the following question:—Is it the duty and province of the Government and local authorities to assist the industrial classes in providing themselves with better dwellings. W. T. McCullagh Torrens, Esq., M.P. for Finsbury, having taken the chair, the proceedings were opened by Mr. T. Paterson, a working man, and Member of the Council of the Union, who read a valuable paper on the subject, illustrating his remarks by reference to a map of London, on which the extent of recent demolitions was depicted. J. Locke, Esq., M.P. for Southwark, then addressed the meeting, making special reference to a Bill on this subject which had been introduced by himself and Mr. Kinnaird. A great number of working men then addressed the meeting, which did not break up until past eleven o'clock.

Rotherham and Masborough.—Owing to the construction of the new railway line through Rotherham, the present building in which the Rotherham and Masborough Working Men's Club is held will have to be demolished. It has been thought very desirable that a society tending so greatly to the moral and intellectual improvement of the working classes should not be allowed to become defunct for the want of a suitable quarter. Holding this view, the Rev. H. M. White, M.A., the Rev. W. Blazeby, B.A., and other gentlemen, materially aided in the getting up of a "People's Hall Company (Limited)," whose object was the erection of a large edifice, in which not only the Working Men's Club might be properly accommodated, but the various friendly societies also, the members of which, in many instances, would be thus removed from the evil influences and attractions of the public-house. It was also proposed to have a large room to be let for rational entertainments. A hint being thrown out as to the readiness of the proprietors of the Rotherham Mechanics' Institute to assist the working men in the construction of a club-house, a deputation from the Working Men's Club and the People's Hall Company recently had an interview with the committee of the Mechanics' Institute, when the committee expressed their willingness to build a club-house for the working men on the plot of ground immediately adjoining the Mechanics' Institute, on the shareholders in the People's Hall Company amalgamating with the Mechanics' Institute proprietary, and taking up a certain number of shares, amounting, say, to £400 or £500.

Wisbeach Working Men's Club and Institute.—At the annual meeting of this institution, the committee's report showed that the institution, now legally constituted a friendly society, was, both financially and otherwise, in a prosperous condition.

Oldbury.—At the annual meeting of the members belonging to the Working Men's Club and Institute, the report showed that the club has been in existence for one year, and has been successful in its operations. It owes its origin to the penny entertainment movement, the profits from which assisted in its establishment. The total income amounted to £130, and the expenditure to £132. This small deficiency will be covered by some promised donations. The manufacturers of the district and friends of the movement gave £50 to defray the expenses for the starting of the club. That such an institution was required is evident from the numbers who have attached themselves to it. There have been 120 quarterly members on an average, 1,660 weekly tickets have been issued, and more than 10,000 visits have been made.

Salford Working Men's Club.—At a special meeting of the managing committee of this club, held a few days since, a proposal was made, at the suggestion of the numerous class of members, with wives and families, for a series of Saturday afternoon excursions during the summer months. The proposition was well received, and arrangements were made that the first trip (to Worsley) should take place on the 5th of May. The general affairs of the club were reported to be in a prosperous condition. The Rev. H. Solly, the general secretary to the "Working Men's Club and Institute Union, London," recently visited the institution, and expressed his gratification and surprise that so much had been done from so small beginnings, and with so little means. The working classes almost exclusively support the institution out of their own resources, and it is not in debt. Among other sources of income, the fortnightly "Penny Readings" during the winter months realised £15. These entertainments were attended on the average by 450 persons. The library has been increased, and, including a recent handsome contribution from the Rev. E. B. Chalmer, the president, contains nearly 3,000 volumes.

The Duke and the Working Men.—Some of the Working Men's Clubs and Institutes in the heart of London were visited last week by the Duke of Argyll, who is announced to preside at the approaching public dinner of the parent society. The duke was introduced to the secretaries of the respective clubs, and to such members of their committees as were present, by the Rev. H. Solly, who also explained the *modus operandi* in them, and the advantages they offer. The visits seemed highly interesting both to the noble duke and to the working men whom he visited.

EMIGRATION.

A Bolton artisan writes from Brisbane, Queensland, as follows:—"In order to give you some idea of the rapid increase of population here, I may tell you that, five years ago, a cattle market did not exist, and the city had only two butchers in it, who, perhaps, killed a couple of bullocks in the week, and could not sell all that. At the present time there are not less than 400 head of cattle consumed per week, and 1,000 sheep; that is 20,800 cattle per year, and 52,000 sheep. The progress of the colony is self-evident, when we consider that its separate existence dates only since 1859. I am not able to give you any correct information as to the population at the present time, but it is generally computed to be not far short of 90,000. In 1864 it was 61,467 persons. The revenue, in 1863, was £390,823; the imports were £173,236; and the exports, £1,888,381. When you compare these figures with the dates and the population, I would wish you to bear in mind the time the colony has been in existence, and that it is the youngest of the Australian colonies. Now, from the fact of all these works being in construction, it must follow that there must be a proportionate demand for labour. True, the demand for labour of all kinds is great, but the supply is three times greater than the demand, and is, therefore, lamentably in excess. It often happens that 1,000 persons land upon our shores in one week, and I have known 2,000; and thus the labour market is suddenly overstocked, and, as a consequence, hundreds walk the streets disgusted with the place. Some of these, no doubt, send home woeful letters to their friends. Again, there are some who ought not to have come, as they are by no means adapted for the requirements of the place. Some are, perhaps, physically weak—unable to endure the climate; some depend solely and entirely upon their 'education,' and find that they cannot get employment—they, too, will send a miserable account of their experience. All who come must be able to do something, to perform manual labour, must be able to work with their hands. Education alone is virtually useless; it may serve to direct labour, but of itself here it is not much in request."

Industrial Progress at Pittsburg, U.S.—There are now over 500 large manufacturing establishments in Pittsburg, among which are 50 glass factories, 58 oil

refineries, 31 rolling mills, 46 iron foundries, 33 machine shops, 12 boiler works, 6 large steel works, 10 brass foundries, 16 potteries, 5 cotton mills, 9 plough works, 10 establishments for heavy forging; also, a number of extensive white lead factories, chemical works, saw, axe, copper, and other manufactories of only the great staples of trade.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE WORKING MAN LIFEBOAT.

To the Editor of the Working Man.

Sir,—I am requested, on behalf of the Council of the Metropolitan and Provincial Working Classes' Industrial Exhibition, to thank you for so readily carrying out the suggestion respecting the lifeboat, and to inform you that we shall be most happy to place one of our silver medals at your service for presentation to the collector of the largest amount towards the fund, if such a course meets your approval.—I have the honour to be, Sir, your obedient servant, W. J. Watts, *Hon. Sec.*

7, Birchmore Terrace, Cardington Street, Hampstead Road, N.W., London, 4th May, 1866.

[As we have no doubt the medal offered will be gladly accepted and highly valued, we shall have much pleasure in becoming the medium of presentation. The first list of contributions will be published in No. 22 of the Working Man, and we shall be glad if the lists intended to be acknowledged in that number be forwarded on or before the 31st of May.—Ed.]

SHALL VICTORIA PARK BE DESTROYED?

To the Editor of the Working Man.

Sir,—I trust you will afford me the use of your columns to make known to the public the very great and serious nuisance which two powerful gas companies are about to create in the immediate neighbourhood of Victoria Park, in the confident hope that, when the outrageous grievance is made known, the expression of public opinion will be so strong and unanimous on the subject as to avert the threatened evil, and preserve this beautiful park from so great a calamity. The Imperial Gas Company have a Bill pending in the present Session of Parliament to enable them to acquire twenty-seven acres of land in the parish of Bow, and to erect thereon stupendous gas-works. There is also a Bill pending in the present Session to amalgamate the City of London Gas Company with the Chartered Gas Company; and another Bill to enable the Chartered Gas Company to acquire land at Hackney Wick, and to erect thereon gas-works of enormous size. The Commissioners of Her Majesty's Works and Public Buildings, who have the management of the public parks of the Metropolis, have not opposed the Bill; the only terms which they have imposed upon the companies are, that no gas is to be manufactured upon any lands that are within 300 yards from any part of the fence round Victoria Park. I feel quite confident that if Her Majesty's Commissioners were aware of the gigantic character of these two proposed new gas-works they would never consent to their being erected in such a locality—the works of the Imperial Gas Company will be 300 yards from the park, and the works of the Chartered Gas Company about 400 yards.

It appears from the evidence given by the Secretary of the Imperial Gas Company before a Committee of the House of Commons in 1865, and before a Committee of the House of Lords during the present Session, that the company intend to erect works on the land at Bow at a cost of about £1,000,000, capable of making 17,000,000 cubic feet of gas daily. The daily consumption of coals to produce that quantity of gas will exceed 1,200 tons. It appears also that the Chartered Gas Company intend to erect works on the land at Hackney Wick capable of producing daily 12,000,000 cubic feet of gas, to produce which will require a daily consumption of 800 tons of coal. These two gigantic gas factories will be the two largest gas factories in the world. They will be on the east side of Victoria Park; and as east winds prevail during a great part of the year, the effect which will be produced upon the park and adjoining property by the dense clouds of smoke continually emanating from thousands of retorts, consuming daily 2,000 tons of coal, and casting into the air all sorts of poisonous vapours, will be most disastrous. No such intolerable nuisance would be suffered to exist near Hyde Park, St. James's Park, Regent's Park, or Battersea Park; why, then, should it be permitted to be established near Victoria Park?

In order to have a clear conception of the extent of the nuisance which will be created, it must be borne in mind that each of these gas works will exceed in size three of the largest of the present existing gas-works in or near London put together; so that the nuisance created will be as great as the nuisance which would arise from six of the largest gas-works in the Metropolis being concentrated in one place.

Victoria Park was formed at a heavy cost to the country, for the use and recreation of the people of the north-east end of London. It is kept up in excellent order, at a very considerable annual expense; a choice selection of ornamental shrubs and trees are planted in it, which thrive remarkably well, and it has become woody, luxuriant, and beautiful. On a summer's day it is frequently visited by upwards of 50,000 persons—the hard-working population of the north-east of London having most cordially responded to the enlightened efforts made for the amelioration of their condition. But if these enormous gas-works be permitted to be erected the park will be entirely ruined; the present luxurious growth of flowers, shrubs, and trees will be blighted and destroyed; and visitors, instead of inhaling a pure and healthy atmosphere, will breathe an air vitiated with all sorts of poisonous and noxious gases. Besides the injury which will be inflicted upon the public, the owners of property in the neighbourhood will be most seriously damaged. As no necessity exists for manufacturing gas near the place where it is consumed, these companies ought not to be permitted to erect works of such vast magnitude in such a locality; and, as I have stated before, I do not believe that Her Majesty's Commissioners of Works and Public Buildings can be aware of the gigantic character of the gas factories proposed to be erected, otherwise they would at once exert their influence to prevent these Companies from obtaining Parliamentary powers to erect such extensive works so near to Victoria Park, or even so near the Metropolis itself. I sincerely hope that the matter will be taken up warmly and earnestly by these Members of Parliament who are anxious to promote the interests of the working classes, in order to prevent what would be an everlasting disgrace to the Legislature, namely, the sanctioning of measures which will enable these two powerful gas companies to inflict a perpetual curse and nuisance upon the inhabitants of the north-east end of London.—I am, Sir, your very obedient servant, P. Francis Dart, M.A. Oxon.

6, Francis Terrace, Victoria Park, April 27th, 1866.

SAVE VICTORIA PARK.

To the Editor of the Working Man.

Sir,—If the working men and working women of London wish to preserve their beautiful and much-prized park from destruction, they must bestir themselves to instant action. The gas companies are about to erect works on an unprecedented scale of magnitude in the immediate neighbourhood of the cricket lawns, and not far from Miss Burdett Coutts' splendid fountain, the effect of which will be to convert what has become the popular recreation ground of East London into a place which cannot be visited without the risk of being poisoned by the noxious fumes and vapours of the gigantic gas manufactories. If the working men of London have the least particle of spirit in them, they will not allow themselves to be tyrannised over by these reckless monopolists. Such a terrible nuisance would never be tolerated near the dwellings of the wealthy, and why should it be brought to the homes and the recreation grounds of the working man? I hope that from every workshop, from every factory, from every establishment where working men and working women are to be found, there will instantly issue such a voice of indignant remonstrance that the Government will be compelled to oppose the projects of the gas companies. There must not be the delay of a single moment if the park is to be saved. The gas companies have stolen a march upon us. They have managed to get their Bill passed by the House of Lords, and read a first time in the House of Commons. They thought they had only poor working men to deal with, and that they—the great capitalists, with their vast money power—would meet with very little real opposition to their schemes. But there is something more powerful than money. That something is Public Opinion! Let every working man feel it to be his bounden duty to resist to the uttermost this shameful and unjustifiable attempt at curtailing his rational enjoyments; let him assist in getting up petitions, which, if signed and forwarded to me, shall be presented by the right men to the House of Commons; and, above all, let him be prompt in action. The delay of an hour may imperil the safety of the park. Mr. Cowper has given it as his deliberate opinion "that no great ground of complaint could be made even if gas-works were erected within 300 yards of any buildings, provided they were properly and prudently conducted. The nuisance arising from gas-works, being entirely occasioned by the refuse of those works, could be remedied by the insertion of a clause requiring the company to remove the refuse, and to prevent the accumulation of such refuse." Would such language be used were the works proposed to be erected near Kensington Gardens? Certainly not. Then why use it with reference to Victoria Park? Are the lives and pleasures of the poor less valued or required than those of the rich? If the working men of London be true to themselves in this matter, if they undauntedly demand that the gas companies be denied the power to rob the poor of one of their most prized spots of recreation, he will be a bold man who dares oppose them. Let us all work in the good cause: let there be no delay in the matter; let every man instantly put his shoulder to the wheel, and then not only our children, but our children's children, and their descendants, will bless us for preserving to them at least one spot where the hard-worked children of toil may come forth from their unhealthy homes in the courts and lanes, for the purpose of breathing the pure and refreshing air of heaven.—I am, Sir, yours respectfully, John Plummer.

4, Homer Terrace, Hackney Wick, May 5, 1866.

THE VICTORIA PARK CRICKET CLUBS.

To the Editor of the Working Man.

Sir,—The Victoria Park Cricket Clubs ought to lose no time in petitioning Parliament to adopt immediate measures for the protection of the park from the danger which awaits it in the shape of the threatened encroachments of the gas companies. The petitions should be entrusted to Mr. John Stuart Mill, M.P., Mr. Beresford Hope, M.P., Mr. Thomas Hughes, M.P., Lord John Manners, M.P., or Professor Fawcett, M.P., for presentation to the House of Commons. A.

May 5, 1866.

TO CORRESPONDENTS.

Notice.—In answer to numerous inquiries respecting the eligibility of clerks, book-keepers, and others holding similar positions, as competitors for the prizes offered by Messrs. Cassell, Petter, and Galpin, we beg to refer our correspondents to the announcement in No. 12 of the Working Man.

Mechanic.—The phenomena alluded to by you are well known. A contemporary says:—"It is a fact known to the philosophical instrument makers, that if a metal wire be drawn through a glass tube, a few hours afterwards the tube will burst into fragments. The annealed glass tubes used for the water-gauges of steam-boilers are sometimes destroyed in this way, after the act of forcing a piece of cotton waste through them with a wire, for the purpose of cleaning the bore. This will not happen if a piece of soft wood is employed."

Laura.—We cannot undertake to reply to such trivial questions.

Artisan.—Wooden shoes (clogs) were introduced by some Flemish weavers in 1337.

J. J. W.—The first cotton mill in Glossop was erected in 1784.

S. T. O.—Yes; the Boston *Transcript* gives an account of a newly invented cotton-picking machine, hardly less important and valuable than the cotton-*ginning* machine invented by Eli Whitney. One of these machines, it is claimed, will do the work of twenty men, gathering cotton as clean as the most expert hand could do it, at distances ranging from six inches to six feet, and taking it only from the bolls which are ripe and well open, leaving the undeveloped pods uninjured, and not harming the plant.

W. S.—The discovery of mines of rock salt in this country is of comparatively late date, being not quite 100 years ago. It occurred from a search which was made for coal near the town of Northwich. In Poland, on the contrary, the salt mines have been worked for 500 years, and there the stratum of salt is in some places so pure as merely to require breaking, whereas in England it requires to be dissolved and evaporated before it is fit for culinary purposes.

J. B. K.—It is meant that you should write on one side of the *page* only, not on both sides.

Saml. Rogers wishes to obtain from a reader of the Working Man instructions for making a velocipede.

L. M. D.—From the time of Henry VI. till 1832, the qualification in English counties was the ownership of a freehold property worth a clear 40s. a year. The Reform Bill continued this qualification with a slight modification in the case of life-renters. It also admitted to the suffrage copyholders having land worth £10 a year; leaseholders having land worth £10 a year, when the lease had been granted for 60 years and upwards; and leaseholders with land worth £50 a year, when the term of the lease exceeded 20 years. A 40s. freehold gives a county vote, even when the freehold is situate within a parliamentary borough.

John Buchanan.—You do not state the nature of the difference you allude to.

Sour French Claret.—Thanks for your letter, which want of space forbids our insertiug.

A Youth of Fifteen.—Odell's system of shorthand is the best. You can procure a cheap copy at many of the second-hand bookshops.

J. James.—Some cardboard, a pencil, rule, penknife, and a little glue, paste, or gum are all that you will find necessary in making cardboard models. For the rest, you must rely on your ingenuity and skill. There is no work on the subject.

A Factory Operative.—The Bleaching and Dyeing Works Act (23 and 24 Vict., c. 78, and 26 and 27 Vict., c. 38) applies the Factory Acts to bleaching and dyeing works, with certain exceptions. Lost time may be made up by young persons and women by working until eight o'clock on the first five days, and until half-past four on Saturdays, providing the total time in six months does not exceed the time allowed by the Factory Act. Children (under 13) may not work beyond six o'clock on the first five days, and two o'clock on Saturdays. No woman or young person, however, may work more than nine hours on the Saturday, or twelve hours on any other day. If the machinery is moved by a water wheel, and, by reason of the shortness or excess of water, is stopped for part of a day, young persons and women may work during the night, except Saturday night, providing they do not work in the twenty-four hours more than the usual number of hours. The provisions in the Factory Acts as to the whitewashing of ceilings, fencing of machinery, and meal times, are not to be applied to blacking and dyeing works, and the number of hours may be worked between six a.m. and eight p.m.

Caxton: The only remedy is by an action in the County Court.—Botain: your remarks on the subject of botany shall receive due attention.—J. W. S.: The number has not yet been definitively decided.—W. O. (York): The subject treated in your letter is more suitable for the columns of a newspaper.—Designer: *Periphery* means the boundary line of a circular or curvilinear figure.—S. G. N.: The registration fee charged by Mr. J. Tidd Pratt does not exceed a few shillings. The charge is perfectly legal.—Nemo on a Pedestal: The first of a short series of papers on modelling appeared in No. 68 of *Cassell's Illustrated Family Paper*, New Series.—Truthful: We have not yet published an article on the subject.—Shirley Brooks: The refusal of the mother does not lessen the legal liability of the father.—A. B.: We are not acquainted with any works on the subject other than those named by you.—E. S. D.: We are unable to comply with your request.—A Working Tailor: Thanks for your letter and the information it contains.—Browne, Y.: Both Canada and America are alike suitable for your purpose; but perhaps the former country would prove the most advantageous.

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20	5	1		0 10	1		1 5	3		2 10	5	
25	5	8		0 11	4		1 8	4		2 16	8	
30	6	6		0 13	0		1 12	6		3 5	0	
35	7	6		0 15	0		1 17	6		3 15	0	
40	8	9		0 17	6		2 3	9		4 7	6	
45	10	5		1 0	9		2 11	11		5 3	9	
50	12	8		1 5	3		3 3	2		6 6	6	

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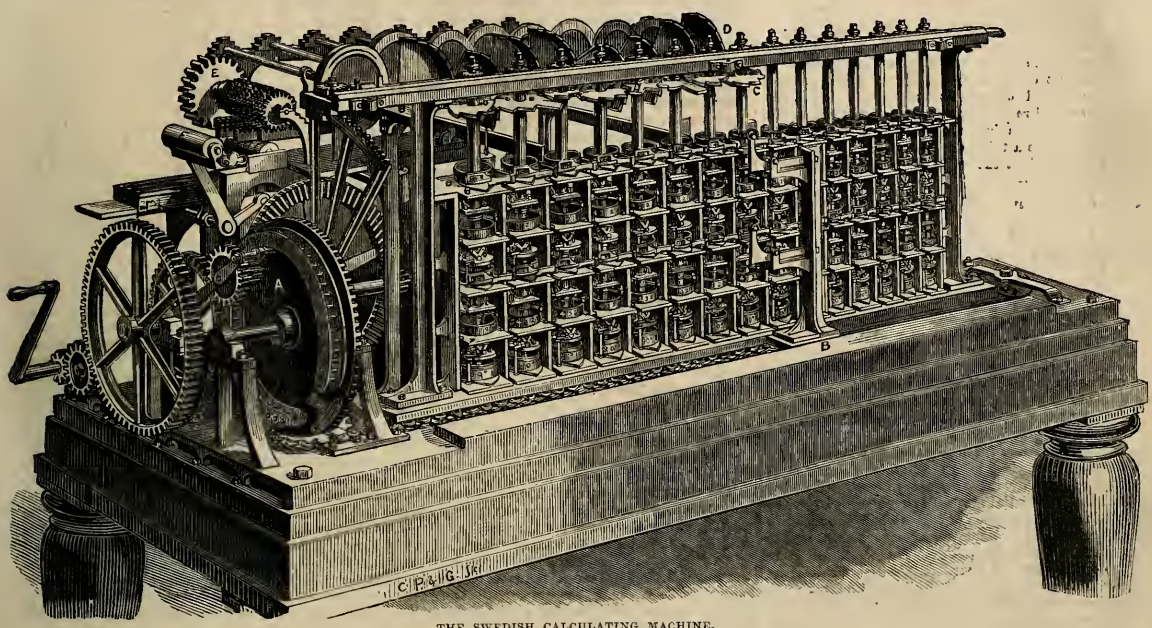


THE SWEDISH CALCULATING MACHINE.

The Swedish Calculating Machine.

THE wondrous advance which has been made during the present century in human knowledge and skill, as displayed in the multifarious ways whereby time, money, and labour are economised, through the substitution of mechanical for manual power, tends almost to make one sceptical whether there be any limit to that progress.

Looking back over the last hundred years, and contemplating the marvels which are now "familiar as household words," he would be a bold prophet who would venture to predict an era when the fiat, "Thus far shalt thou go, and no farther," will bar the way in any branch of the development of man's reason and genius.

We have almost "put a girdle round about the earth," and annihilated distance by the aid of electricity, in whose subtle power lie capabilities as yet but partially known. The most intricate work possible to be done by hand is now executed with far greater accuracy and dispatch by machinery; and pretty nearly everything short of sentient intelligence is evolved from combinations of levers, cranks, and wheels, more or less complex.

The idea of employing mechanical contrivances to execute the elementary functions of arithmetic is of very ancient date. Instruments, such as computing boards, or the *Abacus*, with its rods and sliding balls, to be seen at this day in our infant schools, were employed by the sages in the very earliest periods of civilisation, to aid them in combining numbers.

In later times, and following on the discovery of logarithms, there was the invention of Baron Napier, called *Rhabdology* (since popularly known as "Napier's bones"), whereby, through the medium of a number of small rods arranged in rectangular pyramids, the principal rules of arithmetic might be worked.

Subsequently scientific men of almost every European nation, including the celebrated names of Pascal and Leibnitz, have tried to solve a problem which has, perhaps, absorbed an equal amount of thought and labour with the search for the philosopher's stone or perpetual motion. The major part of these designs consisted either of modifications of Napier's principle, or of the elaborate invention of Pascal; but none of them ever became more than curiosities of science, whose remains are yet to be met with in museums. Their complexity, slowness of working, and inexactness, rendered them altogether useless for practical purposes. Indeed, with the exception of Pascal's design, none of them are entitled to be called "calculating machines;" they were simply arithmetical instruments for performing isolated operations—scientific toys, in fact. Of course, under this classification we do not include Günther's calculating rule, or its many modifications, as that ingenious contrivance has been of real use, and is now very extensively employed by architects and surveyors.

For the *arithmometer*, invented by M. Thomas, of Colmar, in 1822, it is claimed that it is endowed with "une véritable intelligence," and that it executes all ordinary arithmetical operations, without fatigue to the operator; but of this instrument we are not in a position to speak from personal acquaintance with its merits.

There is one thing in the history of calculating machines beyond all question, which is, that the honour of originating and actually establishing by proof, the idea that machinery could be made available for much more extensive functions than any hitherto thought of, and that the results of such operations might be simultaneously printed, belongs to our highly-gifted countryman Mr. Charles Babbage. From his recently-published book, "Passages from the Life of a Philosopher," we learn that the idea of a calculating machine first struck him in 1812, when studying a table of logarithms. Pursuing this thought, he came to the conclusion that a machine to execute the isolated operations of arithmetic would be of comparatively little value, unless it would work with very great rapidity and accuracy, whilst the method of differences supplied a general principle by which *all* tables might be computed mechanically; and to ensure accuracy, he required that the same mechanism should print whatever tables it computed.

It would carry us far beyond the scope of our present purpose were we to enter into a full explanation of the mathematical principle which lies at the root of Mr. Babbage's conception; but it is impossible to convey to our readers any correct idea of the elaborate machine we have to describe unless we touch, however briefly, on the end for which it was designed.

The method of finite differences is that by which, when any given points in certain series of numbers are known, the intermediate terms can be calculated from those points. It is therefore applicable to numerical tables in which the values increase or decrease, according to some general law. Now, a column of the natural numbers from 1 to, say, 10,000, would increase in arithmetical progression by the constant addition of 1; so, if we write 1, 2, 3, 4, &c., and begin to subtract the less from the greater consecutively, we shall find that the difference between each term is 1 invariably. The series, therefore, is of the simplest character, and requires but *one* difference in its construction.

Next in order would be a table composed of the *squares* of the natural numbers, which would

involve *two* differences; and higher still, a table of the cubes, or third powers of the natural numbers, would require *three* differences. The following examples will illustrate the application of the differential method to such a table:—

Natural Numbers.	Cubes of the Natural Numbers.	1st Difference (δ^1)	2nd Difference (δ^2)	3rd Difference (δ^3)
1	1	7		
2	8	19	12	
3	27	37	18	6
4	64	61	24	6
5	125			

We see here that if we continued this table to an indefinite length, by taking the difference between each of the cubes, then the difference of those first differences, and then the difference of those second differences, the last of the differences would remain invariably 6 to the end of the chapter. From just these few figures, then, we could deduce a table of cubes to any extent, and we should start the calculation by writing down in this way:—

δ^3	δ^2	δ^1	First term of the Required Series.
6	12	7	1

subsequently proceeding as follows:—

δ^3	δ^2	δ^1	Terms of the Required Series.
6	12	7	1
6	18	19	8
	24	37	27
		61	64
			125

and so on to the limit of the series.

Following out the same principle, a table of fourth powers would involve *four* differences, and so on for higher powers.

We have thus far spoken of the most simple form of numerical tables, where the increase is regular and by arithmetical progression only; but the differential method is even of far greater use in the construction of tables where the increase or decrease is in geometrical progression, and is either regular or fluctuating. Huge volumes there are of all sorts and sizes, containing we should be afraid to say how many millions of figures, in the shape of tables of interest, logarithms, navigation, and astronomy, as well as the necessary tables for insurance wherein the probabilities of life are combined with the interest of money. All these lie within the compass of the same method; all require immense time and labour in their calculation; and in all, the difficulty of avoiding clerical and arithmetical error, even under the most stringent precautions, is almost insurmountable.

Taking the mathematical principle which we have endeavoured to shadow forth as his guide, Mr. Babbage determined to put his ideas to the test of experiment, and, in 1821, he produced his first machine—or, as he properly calls it, "Difference Engine No. 1." This was only a small matter, but it sufficed to demonstrate the practicability of producing a machine which should approach to the very verge of thinking for itself—at any rate, one to which its originator could say, "I give you the first term; from the values of the difference between that term and any given point supply me with all the intermediate terms!" In this respect our countryman takes rank as the real inventor of calculating machines proper. Mr. Babbage's success led to a commission from the Government, in 1823, for "Difference Engine No. 2," which was to possess powers far surpassing those of his original conception. After devoting many years of thought and labour, and much money from his private resources beyond the £17,000 advanced by the Government, to the production of the machine, Mr. Babbage discovered new principles, which opened up such an extended range to the power of mechanical combinations, that the old ideas were altogether superseded; and as the Government would go no further, the Difference Engine No. 2 was abandoned.

In 1834, there appeared in the *Edinburgh Review* a very able and exhaustive article, by Dr. Lardner, on the calculating machinery of Mr. Babbage. This article fell into the hands of Mr. George Scheutz, then an editor of a journal of arts in Stockholm, who derived from it the first idea of constructing a machine for the same purpose as that of Mr. Babbage. Mr. Scheutz, with the aid of his son, Mr. Edward Scheutz (a student in the Royal Technological Institute at Stockholm), so far carried out the design as to construct a working model, with printing apparatus included, which was completed in 1843. After a lapse of eight years a sum of money was awarded by the Swedish Diet to the inventors, who immediately applied it to the construction of a new and an improved machine, which was finished in 1853. The inventors visited Paris and London in 1854—5, with their machine. It was exhibited, and its principle explained by Mr. W. Gravatt, F.R.S., at the Royal Society's rooms in Somerset House, to the late Prince Consort and to numbers of scientific visitors. Subsequently it was purchased by Mr. Rathbone, of Albany, U.S., and presented by him to the Dudley Observatory in that city, where, we believe, it still remains.

We ought, in justice to Mr. Babbage, to say that his conduct towards the ingenious Swedes was above all praise. So far from betraying the least feeling of jealousy, he warmly espoused their cause, and has always borne candid testimony to the merits of their design.

Many years ago Dr. William Farr, of the Registrar General's Department, had expressed his belief that machinery such as Mr. Babbage had invented could be made available for the construction of a number of tables—in especial, tables for life insurance purposes; and having satisfied himself that the Swedish machine was in every way suitable for such operations, the Registrar General obtained the sanction of Her Majesty's Government for the purchase of a machine, to be constructed by Messrs. Donkin, the well-known engineers, from the drawings of Messrs. Scheutz, on a plan superior to their first machine.

Sir George Lewis, then Secretary of State for the Home Department, gave the necessary authority, and the result was the very beautiful piece of mechanism of which, by the courtesy of the Registrar General, we are enabled to give the illustration which prefaces this description.

The Government paid £1,200 for the machine, but we believe that that sum did not, by any means, cover the cost of construction to its makers. As soon as it was completed, it was deposited at the General Register Office, where Dr. Farr immediately put its capabilities to a severe practical test, by employing it in the differential interpolations for a new English life table, on a most extensive scale, which he was then enabled by its aid to construct. The volume containing that table was published in 1864, and it includes no less than 238 pages, calculated by the machine, and printed from stereotype plates produced from the matrices stamped by its type-wheels. Thus the nation has something really valuable to shew for its money; and it is questionable if such an elaborate undertaking would have been possible if the work done by the machine had been required at the hands of even a much larger staff of computers than would ever be available in a public department.

Next week we shall give a section of the calculating part of the machine, and describe the mechanical action which produces the required results.

"As the Homes, so the People."

A certain poet is celebrated in anecdote, who is said to have made the remark, "Let me write the songs the people sing, and I will determine what character they shall bear;" or, perhaps, he put it (for no one can tell how an anecdote centuries old was originally put), "Let me write the songs of the people, and I will answer for the character of those who cherish them and sing them." With much more truth it might be said in these days, "Let any one know the character of the habitations in which a people consent to dwell, and he might at once declare the average means they possess, the degree of refinement at which they have arrived, the nature of their social habits, and the sort of physical health by which they are distinguished." The habitations, perhaps, more than anything else in these days, indicate the general condition and character of the people. We quoted, in a recent article, a bold and significant saying of Sir John M'Neil, that "there were houses, and great numbers of them, too, of an immoral construction." Happily, this question is receiving general attention.

An able volume has lately appeared—the ablest book upon the subject we have seen—by Mr. James Hole, of Leeds, entitled "The Homes of the Working Classes." The volume, which is large and handsomely got up, is published under the sanction of the Society of Arts. It bears the motto which we have placed at the head of this notice, from the pen of Mr. George Godwin, one of the chief authorities we have upon the subject. Mr. Hole, who is practically acquainted with the subject—there having been more attention paid to it in Leeds than in any other town—not only brings to bear upon his exposition of the homes of the working class his own experience, but accompanies it with practical suggestions for the improvement of working men's houses. His book is dedicated to Mr. Akroyd, M.P., who has built a township which bears the name of Akroydon. Mr. Hole's "Homes" is accompanied by a series of plates and plans of overlookers' and workmen's dwellings, erected at Saltaire, Copley Village, and Copley Houses, Model Cottages of Leeds, of West Park, Halifax; and the handsome model buildings erected by Mr. Alderman Waterlow at Finsbury are included in the plates, with such plans and details as will enable builders to erect similar habitations. Mr. Hole's volume is, indeed, a text-book upon the subject to which it relates. Few men, able to write so good a book, and having the experience to make it so trustworthy, have the enthusiasm for social improvement by which Mr. Hole is distinguished. In none of the very useful works which has proceeded from his pen, has he appeared to so much advantage as in this volume.

Habitations are to towns what verdure is to a country, with this difference, that the wild luxuriance of Nature is always graceful; the uncultivated architecture of towns is nearly always hideous. Our architects and builders seem to have less originality and less taste than any of our professional men; while their work is the most permanent, and their abortive or thoughtless creations afflict the earth with ugliness for generations, and sometimes for centuries. Of all the uses to which brick and mortar can be put, their talent seems to be in choosing the most unsightly. It would be a disgrace at this day to build a hound-kennel in the style in which poor men's houses are often put up. There is no agricultural show now where more handsome horse-boxes may not be found exhibited than any kitchen of a working man, except where the influence of such men as Mr. Hole, Mr. Godwin, Mr. Roberts, Alderman Waterlow, Mr. Peabody, or the late Prince Consort has prevailed, and of others less known to the public, who, like these, have thought that the taste of the towns and health of the people might be greatly raised.

It is very well known—Mr. Rigby, in a paper drawn for the Society of Arts, points out the fact without giving names—that a large quantity of bad house property in London is in good hands. Miserable sub-let tenements, destructive of health and morals, are owned by very benevolent persons, many of whom have never thought upon the subject. A society which had no other object than finding out the owners of such places, and giving them notice of the fact, would achieve more good than many associations devoted to pet advocacies of new things. Giving information simply is a great thing, provided it be of the right kind, and given in the right spirit to the right parties—three things quite possible to ordinary sagacity and good-will.

The room in which a man lives and dies is important to him. It is important to his family that their home should be marked by taste and comfort. In large towns and growing places, position is everything. However ugly, however inconvenient a house may be, it will be occupied in certain places. It is perfectly gratuitous of owner or builder to think of beauty or convenience. It is a mere matter of conscientiousness; and this quality is not to be expected to be excessive in landlords and builders more than in other classes. Public opinion must step in, and quicken insight and duty in those who have it in their power to perpetuate home frightfulness. Mr. Hole's book is in aid of this public opinion.

If we remember Saltaire accurately, there are some hills before, and a river running through the town; but the fronts of the houses are mostly turned away from the only sight which could charm the working-class occupants. The houses

are good—they attract workmen all around from badly-built towns. Mr. Salt has done a valued thing in putting them up; but his builder might have done better, and so have arranged them as to give a priceless prospect to them, gladdening the hearts of all the occupants for ever, without further cost than thought. That thought not occurring, the town stands fixed for generations. No fortune will rebuild it or undo it. We can bury or break the abortion of the sculptor; we can put away, or sell for signboards, or burn the unhappy canvas of the painter; but the infelicitous idea of the architect is fixed, irremovable—a nuisance for untold time.

We have not seen the position of Akroydon and Copley Village as respects the relation of the houses to the outlook around them; but Mr. Akroyd himself has told us that he sought to put up picturesque habitations at Copley, modified on the old English style, after the manner of old dwellings in the neighbourhood, and in harmony with the beautiful site which lies on the bend of the river Calder. This is taste, and true taste; it is mercy and munificence in its higher and more enduring forms.

Mr. Hole discusses a point of great practical importance—namely, that it does not pay a working man to live in a bad, unhealthy house. He does not gain by it. He thinks he does. This is his mistake. All he saves in rent, and more, goes to the doctor sooner or later, besides the discomfort and suffering of this medical outlay. It is a great thing to do if we could improve popular opinion hereupon. Workmen keep bad houses in the market by taking them. Cheap, bad places are in demand; they ought to be deserted. We know the very poor have little choice; but workmen whose wages really enable them to have some choice do not think of this. We do not put it as a matter of pride, or even taste, but as a matter of economy. Whoever can afford a doctor can afford a well-ventilated, healthy house. Upon all these and many other points we wish to send our readers to Mr. Hole's book. Where it is not brilliant it is sensible and forcible. The author always gives you the impression that he knows well what he is writing about, and of being in earnest. His matter, where it partakes of a business-like character, is constantly clear, and the many plates make even details interesting. Mr. Hole often enlivens his pages by quotations from the poets, but he has no wiser or better lines than these, with which he concludes his work:—

"On the future cast no yearnings, wait not for a brighter day;
We, the builders of the present, make the future what we may."

*The Origin and Uses of Trade Guilds.**

We have traced the rise and progress of the guilds in power and importance up to the time of Henry VIII., and the encouragement afforded to them by the patronage of successive monarchs. Little change took place in their constitution and privileges until the reign of Charles II., when they were induced to relinquish their old charters for others by which the king restricted their prerogatives. But this monarch's proceedings were reversed after the Revolution of 1688, and, nominally, the trading companies were then left to enjoy the same influence as of old.

We have seen, by the powers they had exercised from time to time, according to their charters, that each company claimed absolute jurisdiction and supervision over its own particular trade. This jurisdiction extended to every member of that trade within the city or town in which the guild was established. No person was admitted to practise a handicraft or set up in a business in such a town, before becoming a member of the trade company; and in most cases this could only be effected after serving an apprenticeship.

The regulation of apprenticeships was in the hands of the company, and vigilance was exercised to see that no freeman of the guild employed others than those who were properly apprenticed, or had served their time. Freemen who were ascertained to have infringed the rules in this respect, were either fined or expelled the guild, according to the circumstances. All freemen were also bound to keep the secrets of the trade.

An important power was the right of inquiry and search into the way in which business was carried on, and to fine or imprison unfair traders. A kind of jury was appointed to go the round of the trade at certain times, to discover and report offences. Defective weights and measures were sought out by the officers of the company, as at the present time by Government inspectors. Each company possessed a standard of such measures. Thus the Merchant Tailors kept a silver yard, duly impressed with the company's arms, for the measurement of cloth; and when the great cloth sales occurred at Smithfield, their officers attended to test all persons' measures by this standard. The quality of articles sold was also ascertained; the Vintners, for instance, tasting and gauging wines; the Goldsmiths assaying metals; the Grocers examining drugs, as well as confections, &c. No doubt, in the times when this trade vigilance was carried on, there was far less complaint of the adulteration of food and other necessaries than at the present moment. Increased laxity in this respect is one of the penalties paid by the public for the removal of trade restrictions.

The companies themselves were not without control, for the mayor of the town could fine or imprison their chief members. An instance of this is found in the records of the Brewers' Company. "On the 30th of July, 1422," so runs the entry, "Robert Chichele, the mayor, sent for the masters and twelve of the most worthy of our company to appear at the Guildhall; to whom John Fray, the recorder, objected a breach of government, for which £20 should be forfeited for selling dear ale. After much dispute about the price and quality of malt, wherein Whityngtone, the late mayor" (the celebrated Dick Whittington of nursery story), "declared that the brewers had ridden into the country and forestalled the malt to raise its price, they were convicted in the penalty of £20, which objecting to, the masters were ordered to be kept in prison, in the chamberlain's custody, until they should pay it, or find security for the payment thereof." In this case, it will be observed, the company was held responsible for the misdeeds of members of the trade.

Such were the powers of the guilds, and the checks imposed upon them. Most of these powers were, at one time, of great public service. Had it not been so, they could never have been retained for several hundred years. They obviously tended to foster trade, and secure that it should be properly carried on; but, as time advanced, the requirements of the people and the spirit of the age became different. The system of monopoly, which was one of the leading principles of the guilds, came more and more into disfavour, and the powers of the companies began to decline, through the force of public conviction, long before they were restricted by legislative enactment. The claims of the guilds were felt, in fact, to exercise, in many cases, an injurious influence on the free exercise of industry. They were long the *nurseries* of trade; but it was no more good for trade than for man to be always in the nursery.

The Municipal Corporation Reform Act, 5 and 6 William IV., finally abolished their exclusive privileges. Every lawful occupation was made free to every man, to be engaged in without restraint in any part of the kingdom he might choose. Since then the companies have been held together, in part by the *prestige* attaching to their ancient traditions, but still more by the noble charities and institutions of which they were the foundation. To the honour of the guilds it must be mentioned that, from the earliest times, the principle of mutual assistance in difficulty or distress was as constantly kept in view as trade interest. Almshouses, pensions for decayed members, schools, loans for young beginners, &c., were established, and exist at the present time. Nor was the charity of the companies confined to trade limits; for many of them founded funds for the relief of the poor, the support of hospitals, sermons, university exhibitions, and similar objects. The annual gifts of one company in the City of London to the poor at the present time amount to £3,000; another expends nearly £10,000 a year among its various charities. The trade guilds will never perish nor lose public esteem while such works as these are recorded to their credit.

There are eighty-one trade companies still existing in the kingdom; of these the most ancient and the chief are, of course, those established in the metropolis. The "twelve great companies" of the City guilds bear the title "honourable." The following are their names and order of precedence, settled after long contention:—1, The Mercers; 2, Grocers; 3, Drapers; 4, Fishmongers; 5, Goldsmiths; 6, Skinners; 7, Merchant Tailors; 8, Haberdashers; 9, Salters; 10, Ironmongers; 11, Vintners; 12, Clothworkers.

* Concluded from page 290.

THE SHEFFIELD TRADES UNIONS.

Mr. Henry Farmer, late student of the People's College, Sheffield, in a pamphlet recently published on "The Manufacture of Files," says:—

"The subject of unions is one of such vast importance, and being a topic upon which such diversity of opinion exists, I may be excused if I make a few brief observations.

"In the file trade there are some thousands of hands employed, as forgers, strikers, lighters, smithers, grinders, strippers, cutters, hardeners, scourers, or file dressers, and warehouse hands. All these parties are interested in the prosperity of the trade. The forgers and cutters have a union, also the grinders and hardeners. The two former work by the statement, and it is to the credit of the file trade that outrages upon person or property are seldom if ever perpetrated. This being the case, the usual objections urged against some unions cannot hold good against them. Were all unions conducted on the voluntary principle, and men left to join them on account of their intrinsic good, then unions would become of service, and obtain the universal respect of mankind, because, to help distress when work falls short or death ensues, is praiseworthy; and to regulate prices amicably between employers and employed, as the file trade have done, is to some extent an advantage. Men ought to be able to live by their labour, and manufacturers ought to have remuneration for their capital, time, and responsibility; but when a union is broken up and each manufacturer cuts against the other, competing for reduction in price *instead* of quality, then down goes the article, and the consumer, like Hodge with his razor that would not shave, has to suffer, whilst neither master nor man is benefited. Let the union, then, be one of value, voluntarily conducted, not only disavowing, but, where possible, bringing to justice Acorn Street murderers; then, and not till then, will they have the sympathy of all other classes of the community, for amicable arrangements are best, and strikes have hitherto been most disastrous in their results. Intended to punish the capitalist, they invariably bring misery on the labourer; and 'rattening,' though it may be similar to college tricks, is often more disastrous in its consequences, for the workman, unlike the collegian, has others dependent on his labour."

ENGLISH SALT MINES.

In a recent lecture on this subject the Hon. and Rev. H. P. Cholmondeley said:—"I must inform you that the rock salt itself is by no means the chief object of those who sink the mine. Very little salt comparatively is manufactured from it, as the process of solution is long and tedious, and would scarcely repay the expense. In my brother's mine none of it is manufactured, but all exported for foreigners, and at a very low price. From the published price-list at Liverpool I see that rock-salt has this year reached the increased price of 6s. 6d. per ton. Far more remunerative than the solid rock salt is the brine, which, in the English mines, is always met with, while, strange to say, in the most celebrated salt mine perhaps in the world—that of Cracow, where the length of the excavation is more than six thousand feet, and its depth, in parts, eight hundred feet—not a single spring of brine has been discovered. In the mines of Cheshire the brine spring is almost always struck by the shaft, which first lays bare the outer seam of rock, whence it is pumped into the reservoirs which supply the salt works. Its strength is about twenty-six parts of pure salt to seventy-six of water. When it arrives at the salt works, it is conveyed into large iron pans from twenty to thirty feet long and broad, and ten to fifteen feet deep. Flues pass under them, by which the brine is heated, and then at a boiling heat the evaporation causes the salt to concentrate in crystals at the bottom of the pan, forming the boiled or white salt which is used for culinary purposes. Of this there are several varieties. There is the table salt, the conical blocks of which are seen in every household; this requires but eight hours' boiling, as well as the butter salt, between which and the table salt there is only this difference, that it is not kiln-dried, and not pressed into forms. By far the largest quantity made, though, is common salt, which is in larger grain than table salt, and requires a slower heat in its production, viz., forty-eight hours' cooking and broiling. This salt is used at home chiefly for chemical and curing purposes, and abroad for the purpose of the table. The actual labour of attending to the salt pans, keeping up the fires, drawing and warehousing the salt, is rather hard; and part of it carried on in so hot an atmosphere that the men are obliged to work quite uncovered to the waist. It is, however, a very healthy occupation, and

one at which an active workman may earn excellent wages, averaging from 20s. to 25s. per week, for twelve hours per day hard work. They are mostly a hard-working, inoffensive race, and much attached to their native valley. They used to be much addicted to habits of drinking, but I rejoice to hear that this sad vice is on the decrease, many masters of mines having abolished the pernicious system of allowing public-houses to be kept in the immediate neighbourhood of the works. This used to be a temptation which few, on leaving their work, hot and thirsty, had the strength of mind or religious principle to resist."

Co-operation on the Continent.

FRANCE.

That nations, like men, have their own way of thinking—their idiosyncracy, as the phrase runs—which constitutes their moral and intellectual character, and distinguishes them from their sister nations, is so trite and commonplace a truism that we should beg the reader's pardon for enunciating it, were it not that in practice this fact is constantly lost sight of, and that nations fail to understand one another, simply because they persist in looking at each other's affairs from what we must necessarily call a foreign point of view. Here is an example in point:—

To begin the work of Co-operation by introducing the principle into manufactures is, in the eyes of most English Co-operators, to try the wrong end first; whilst setting up a Co-operative Store, saving money through its agency, and then investing that money in some kind of manufacturing society, seems to them, not only the most, but the only logical process that can be thought of.

There is much to be said in favour of this view of the subject, and, for our part, we do not pretend to gainsay it; but whether wrong or right—it matters little for the present—it is an incontrovertible fact that the French always thought first of Co-operation as applied to manufactures, always began with associations for manufacturing purposes, and—this is a fact, too—have done wonders in that most important branch of Co-operation, whilst in storekeeping they have scarcely achieved any success worth mentioning. We only know of one store that ever attained, in France, to a state of great prosperity: that was "La Fraternelle"—an *association de consommation*, as Co-operative Stores are called in France—which was, soon after the revolution of 1848, established by the frequenters of the Metropolitan Working Men's Hall, "La Fraternité," Rue Martel, Paris; and that association, like many others, was brought to a sudden and untimely end by the political events of December, 1851. As for the "Société Alimentaire de Grenoble," which happily survived that political crisis, and a great number of *associations de cuisiniers*, which unfortunately did not, they were all of them Co-operative Eating-houses, and must therefore come under the heading of associations for labour purposes. Within the last three or four years, several Co-operative Stores have been established in Paris and the provinces, as well as in Spain, Italy, Algeria, &c., and the new name that is given to many of them—*Store Co-opératif*—shows plainly enough that the light under which the revival of this particular form of association took place did not come from the East, but from the North; it was, in fact, the light which some twenty years ago was born in Toad Lane, Rochdale, and which—thanks to the various translations that have been, and are to be, made of Mr. G. J. Holyoake's admirable "History of the Equitable Pioneers"—bids fair never to stop until it has gone round the whole, whole world. That such associations may succeed in France, as they do in England, and to a certain extent in Germany, is one of our fondest hopes; but even if they did not, or did only to a limited extent, it would be no sufficient reason to despair of the future of Co-operation in France; for, though the French unreservedly acknowledge the practicability and usefulness of this form of Co-operation, it is undeniable that they are much less in earnest about Co-operative Stores than about Manufacturing Societies. In this respect, both their words and their actions are wonderfully consistent; and whether we examine into those few associations which, long before any socialist ever thought of suggesting the practicability of Co-operation, sprung, so to speak, from the soil—born, in times out of date, from local wants and opportunities; or whether we look into the far more numerous ones, which later on were resolved upon by men intent on carrying out an idea—we had almost said waging war for an idea—we shall find between their past and present that same consistency which we are now going to trace out between their words and their deeds. And, before we leave this subject of consistency, let us say that, in our opinion, it is far from certain that the accusation of fickleness which was justly enough levelled against the old French aristocracy, can with equal justice be brought against the French nation at large, and most particularly against the French working classes. Let this, at any rate, be an open question: the toiling millions have scarcely had any history yet, and should not be judged by their masters' deeds.

On the question to which we have just been calling the reader's attention—that of the preference of the French for manufacturing societies—the journal *L'Association*, in its very first number (November, 1864), spoke thus:—

"There are three different kinds of Co-operative Societies: the Manufacturing, the Storekeeping, and the Mutual Credit or Loan Societies. These last two forms having lately acquired a considerable development, and the manufacturing societies having made but little progress, some people thought this a sufficient reason to conclude that the future belonged to the last ones, and that the former might, without great inconvenience, be abandoned. It is in Germany, more perhaps than anywhere else, that these ideas have spread, but they have also penetrated into France; and as they seem to us the result of a grievous error, we think it is necessary to oppose them. Our opinion is that the three forms of association are good, that none of them ought to be abandoned, and that the association for the production of wealth should not be neglected for the others, as some people endeavour to persuade us. We even go further: we believe that this kind of association is the most important of all, and that the two others should only be looked upon by the working classes as means, otherwise excellent, to provide for the ulterior establishment of associations for the production of wealth—a kind of association which always shall be the main object of our efforts.

"We are glad to say that in France, where the association for labour purposes originated, and was in some manner invented, the working classes almost instinctively understand this truth. . .

"Every one who chooses to do so, can ascertain the fact, that nowhere in our workshops do those who work for wages receive more than is absolutely necessary to keep soul and body together, and that an incredible amount of courage is needed to bear up against the privations which the least attempt at saving compels them to undergo. Everything tends to make this state of things worse. Thus it is certain that through the introduction of machinery, and the gradual suppression of the small shops, the power of capital increases at a tremendous rate, whilst the labour of the isolated workman loses every day something of its value. It is, then, absolutely necessary that workmen should combine to peacefully resist the colossal forces that are everywhere being organised, and so profit in their turn by the general progress of society. Were it otherwise, there would remain nothing for them but to consider every new invention as an enemy—every social improvement as a personal misfortune.

"Now, Mutual Loan Societies, such at least as those which flourish in Germany, have no influence whatever upon wages. Not so, however, with Co-operative Stores; but mind this: if the working classes absolutely neglected to establish societies for manufacturing purposes, and only cared for stores, there would infallibly happen, that as soon as they would clearly be able to feed and clothe themselves more cheaply, their wages would undergo a proportional reduction, and no other resource would be left to them than coalition and strikes.

"We then maintain that the association for the production of wealth is, properly speaking, the true Co-operative Association. Through it, and through it alone, the working classes will emancipate themselves, hold their ground against the great companies, partake of the profits of industry, cease even to work for wages, and, finally, become their own masters."

Such is the French view of Co-operation—a view which, as a faithful reporter, we were in duty bound to present to our readers. Having done this, we are happy to add, that the French could appeal in favour of the soundness of their view to very high authorities in England. Professor Fawcett, M.P., in his book on "The Economic Position of the British Labourer," says:—

"The first attempts (those of the earlier disciples of communism) which were thus made to Co-operate, were rude and simple; but, although the commencement was imperfect and unpretending, yet a great social and economic movement was commenced. Already great results have been achieved, although Co-operation may be regarded as being yet in the infancy of its development. So much is this the case in our own country, that scarcely any of the societies which are termed Co-operative deserve the title; for, up to the present time, the principle has been almost entirely applied to the distribution, and not to the production of wealth."

This is going further even than the French—too far, in our opinion; for we do not see why an association for a more equitable distribution of wealth should not deserve to be called Co-operative. Yet, we think it good that some among the English Co-operators should be reminded that the most important of co-operative undertakings is the association for the production of wealth, and that, whatever advantages stores may offer, something higher is to be aimed at than a simple partnership in shopkeeping.

*Electrotyping.**

ELECTRO-GILDING AND SILVERING.

Before the precious metals are applied to brass or copper, it is necessary that the articles to be silvered or coppered be carefully cleaned, so as to remove all the oxidised and greasy parts which cover the pure metal, for gold or silver will not adhere to parts in those impure conditions. On the other hand, as the particles of metal are deposited uniformly, and as the new surface copies the old exactly, if the first surface is rough the second is rough also; and if by cleaning we produce a polished surface, the coating deposited upon it will be polished also. This cleaning may be accomplished in various ways, but the object is always the same.

It is very important that the operation of cleaning be well performed, for the success of the succeeding operations is dependent upon it. The process of cleaning varies according to the nature of the metal upon which we operate: *chemical cleaning*, or *scouring*, is applied to copper, bronze, and brass; *mechanical cleaning* is that required by German silver, iron, silver, and the alloys of tin.

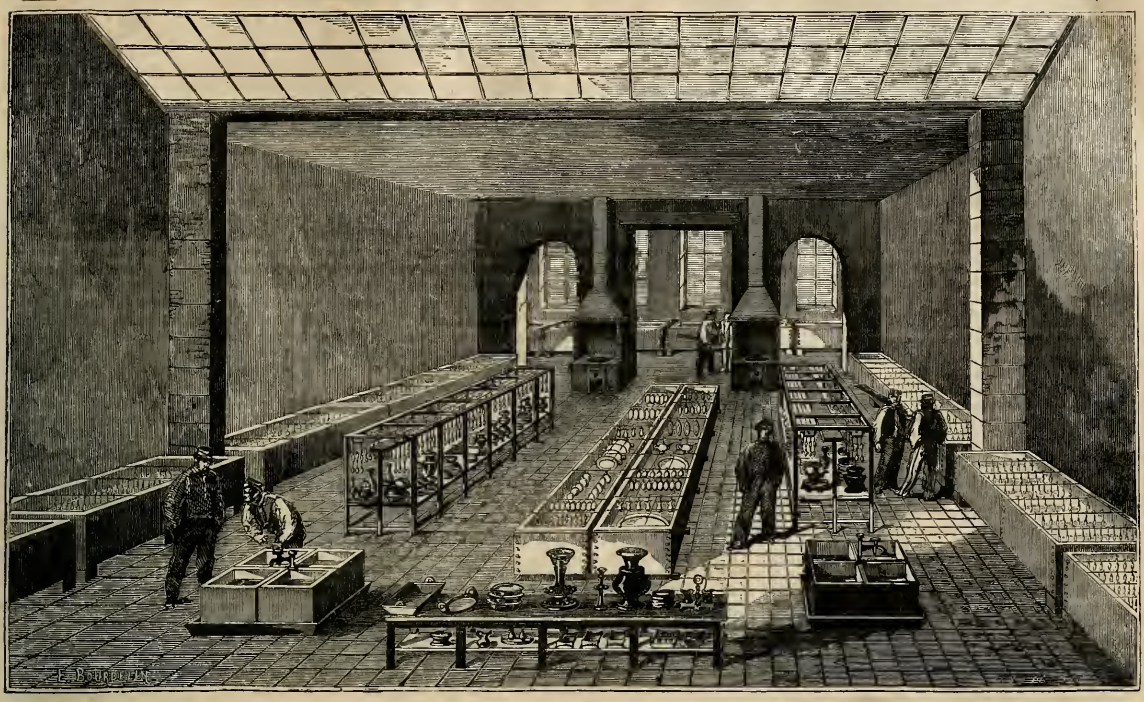
Chemical cleaning consists of a series of very complicated operations. To remove the grease arising from the last stages of fabrication, and especially the condensation of particles imparted to the articles by the chaser, they are heated to a dull red over a charcoal or turf fire. This operation is specially applied to alloys of copper; it causes the gilding to adhere better, and renders the burnishing finer, and puts all the metallic surfaces into the same physical condition. If the articles are of brass, turned, or worked by the hammer, they are put into a strong ley of carbonate of soda, instead of being submitted to the fire.

The exposure of the articles to the fire causes the formation of black oxide of copper, which must be removed to lay bare the pure metal. This is accomplished by immersing the articles in a bath of sulphuric acid diluted with ten times its bulk of water, which is employed warm for small articles, and cold for large ones. The time of operation is not limited; for the bath does not attack the copper, which must remain until the black surface of the articles assumes a reddish colour, which the sulphuric acid does not alter. The articles must not be touched by the hands now, but be suspended by copper hooks with wooden handles. On removal from the acid bath the articles are brushed and washed, and afterwards conveyed to the scouring baths.

The small articles are allowed to remain only a few minutes in the warm acid bath; large articles remain half a day in the cold acid bath. During this immersion the black oxide of copper passes to the state of red oxide uniformly distributed.

Scouring.—The first bath is composed of *aqua-fortis* (nitric acid), which has already been a long

* Continued from page 294.



ELECTRO-PLATING ATELIER OF M. CHRISTOFLE, PARIS.

time employed for the purpose. To restore it to its original condition, it is sufficient to add $\frac{1}{10}$th of its bulk of new acid; it is always ready for use. The object of this bath is to convert the unequal oxidation of the articles into a metallic tint, very uniform after rinsing, and to prevent a too vivid attack in the succeeding bath on those parts where the copper is already laid bare.

The action of the second bath is called *bleaching*. The bath is composed of—nitric acid, 10 parts; sulphuric acid, 10 parts; hydrochloric acid, 1 part. The hydrochloric acid is sometimes replaced by 1 part common salt, and 1 part calcined soot.

This mixture vigorously attacks copper and its alloys. Operations must be conducted very rapidly, and the articles be washed in abundance of water upon removal from the bath. If they are not put at once into the gilding solution, the articles are dried in sawdust.

Mechanical cleaning is performed upon German silver, zinc, iron, and silver. The action of the acids is replaced by *pouncing*, or *pumicing*. This operation is performed by rubbing the articles with a brush of bristles making 600 revolutions a minute, under a stream of water mixed with finely-powdered pumice-stone. Articles which, on account of their delicacy or small bulk, cannot be applied to the wheel-brush, are scoured by hand with appropriate brushes. For silver articles, the pouncing is preceded by the bleaching. They are heated to redness and cooled in a second bath of sulphuric acid at 8°, from which they come out of a beautiful white *mat*; a grey tint shows that the temperature was not high enough. With German silver, iron, and zinc, the pouncing is preceded by a scouring in an alkali, as for brass articles.

For iron, however, a process is employed which is preferable to pumicing. This is a chemical scouring: it consists in immersing the articles, on removal from a potash ley, in a second bath of diluted sulphuric acid, containing 4 per 100 of protochloride of tin. The articles may remain an hour in this bath without experiencing any injury; and polished steel comes out, after the expiration of ten minutes, perfectly cleaned and retaining its brilliancy.

Theory of Gilding and Silvering.—It is important to clearly understand what the agent is that effects electro-silvering and gilding. Whatever be the prussiate employed—whether white cyanide, yellow ferrocyanide (yellow prussiate), or the red ferridcyanide (red prussiate)—the result of the chemical action is always the same, and we always find, and can separate from the liquor, the double cyanide of silver and potassium; and, consequently, it is to that double salt alone that we must attribute the property of silvering. This is what takes place in the three cases of employing the several cyanides:—

1. When we mix cyanide of silver and cyanide of potassium, the double cyanide of silver and potassium is immediately formed.

2. When we boil cyanide of silver in yellow prussiate of potash, the liquor becomes alkaline, and ferrocyanide of silver and cyanide of potassium are formed. By boiling the ferrocyanide of silver it is decomposed into cyanide of silver and cyanide of iron; the cyanide of silver produced combines with the cyanide of potassium, and forms the double salt K Cy, Ag Cy.*

3. If we employ red prussiate of potash, ferridcyanide of silver and cyanide of potassium are formed. The ferridcyanide of silver is afterwards decomposed into sesquicyanide of iron and cyanide of silver, and the double salt, cyanide of silver and potassium, is immediately formed.†

It is, therefore, evident that in all cases it is the double salt of silver and potassium that is formed, and which alone possesses the property of silvering. Extending this theory to all projected solutions, the substitution of one equivalent for another will not change the reactions. The silvering is always conducted on the same principles: we form a double salt of silver with an alkaline base more stable than any of the simple salts of silver, and which, under the action of the galvanic battery, is decomposed into its elements.

Progress of Co-operation in England.—It is stated that Mr. William Lawson, of Brayton, Carlisle, son of Sir Wilfrid Lawson, Bart., and brother of Mr. W. Lawson, late M.P. for Carlisle, has introduced the co-operative system in the management of his estates, mills, nursery gardens, &c., and that he proposes to divide one-tenth of the profits amongst his workpeople.

* This reaction may be represented by the following formula:—2 (Ag Cy) + Fe K^2 Cy^3 = Fe Cy + 2 (K Cy, Ag Cy).

† The following formula will represent this reaction:—3 (Ag Cy) + Fe^2 K^3 Cy^6 = Fe^2 Cy^3 + 3 (K Cy, Ag Cy).

WORKING MEN'S BUILDING SOCIETIES.

Mr. William Hardwicke, the Deputy Coroner for Central Middlesex, says:—"During the last twenty years I have watched with considerable interest the progress of those societies for purchasing land and houses, known generally as building societies. There are at least 2,000 of them, with an invested capital of £8,000,000. These associations are greatly favoured by special Acts of Parliament; they are capable of effecting substantial benefit to the working classes, who may purchase through their medium a house in about fifteen years for the same monthly or quarterly payment that they usually pay for rent in lodgings. These societies offer a good and safe investment, and a large extension of them would tend to counterbalance the cupidity of bad landlords, and lower the rents of inferior houses. Nor ought we to lose sight of the just means which these societies offer for placing the civic and political status of the artisan class on a safe foundation. As owners and occupiers of property, they acquire more frugal and prudent habits, and with increased domestic comfort they are less likely to disturb the peace and prosperity of the country by reckless political agitation, or riotous dissipation. Who can deny that, in accordance with the liberal spirit of the age, a large extension of the franchise is needed? Is it not an anomaly, a reproach to the constitution, that so large a number of the most influential and trustworthy members of the working community should be any longer excluded from a fair share of political influence? The building of houses to the extent they are needed would, in a great measure, remove the ground on which they are at present excluded from the franchise.

"Besides the large increase and better kind of house accommodation which might be effected by building co-operative associations, and philanthropic societies established by private influence, it ought to be known that in the most crowded part of London, and other large towns, a much greater population may exist in a perfectly healthy condition by a better arrangement of cleanly and more open streets, and with loftier houses, or buildings in blocks. The renovation of old houses, too, may be undertaken with advantage. Some notable examples of model buildings in large blocks, capable of accommodating above 100 families, are to be seen in different parts of London.* Mr. G. C. Rigby and Mr. Eyton, who have reported upon model dwellings to the Society of Arts, are of opinion that the plan of buildings with external galleries is, in many respects, the most suitable for the working classes and their families. I wish to mention incidentally two errors that were made in the erection of model lodging-houses by persons with

* Report on the State of Model Dwellings in the Metropolis. By G. C. Rigby, Esq.

benevolent intentions. First, it appears the style of architecture has a tendency to make them too expensive, so that building speculators have an idea that the cost is necessarily so great that they seldom pay more than 4 per cent. on the outlay; the other mistake is that the cottages in the country are of such size and excellence that they are sought after by another class of persons than those for whom they were originally built. These model buildings have every advantage in health and convenience, and the block of buildings is relieved from house duty, each tenement being let at a rent below the rateable amount, and in law is considered a separate house for the purpose of taxation. Floors of these buildings may in some neighbourhoods be advantageously appropriated for shops, a plan which is adopted in Paris, and greatly augments the rent. This, however, is not all that is needed. There must be in all directions suburban dwellings for the industrial population. The most recent attempt to promote this desirable object is that of Mr. Begg, who proposes to form a society (to be called the National Philanthropic Investment Society) for building several suburban villages. By this scheme each village is to contain no fewer than 5,000 cottages, and to be within ten minutes' railway distance of most parts of London. He expects in a short time to remove 350,000 inhabitants from the most crowded districts. A first-class cottage is to contain five rooms, a second-class four rooms, a third-class two good rooms and two smaller ones; each cottage is to accommodate a lodger. Churches, chapels, baths and wash-houses, gymnasia, gas and waterworks, and other public institutions, are to be erected in connection with these villages. Such a scheme, and others which, perhaps, will be devised, can be made feasible only by the assistance of railway companies. Directors are not unwilling to aid. Some have already started working men's trains—trains by which his family are benefited equally with himself—and manifest a disposition to furnish the workman with the same advantage as his richer neighbour, who for years past has had the benefit of living at a distance from the scene of his daily work. It is apparent, too, that cheap locomotion will have the effect of removing many large factories into more open spaces, and thus improve the health of the operatives, and at the same time free crowded neighbourhoods of a redundant population."

How came our Club to Fail?

BY THE REV. H. SOLLY.*

The reason why is generally very plain; plain enough in those cases which I have already detailed at full length, also in most of those which I notice as having failed, in glancing down the list, and in referring to letters or conversations on the subject. It is, however, unnecessary to look further into such cases at any length, because the universal mistake of admitting youths, without due regulations, we now see to be quite enough to have caused failure. Other adverse circumstances, no doubt, have generally helped, but the admission of youths, for the most part, had previously so weakened each Club—so completely repelled adults from attending it in sufficient numbers, that it had not strength enough to resist, or to recover from, other minor evils.

Take, for instance, the Club and Institute at the pleasant little town of A——. Here were most of the elements of success on a small scale, especially an active, zealous, and genial honorary secretary; but in about a year's time he wrote to me thus: "We found, to our cost, as others have done before, that boys and men will not work together. The boys monopolised the place, and, at last, became so unmanageable, that we had to close the Club, and, at present, do not see our way clear to re-open it."

In many of the cases of failure the causes assigned seem so utterly inadequate that we are naturally led to ask if there were not some other deeper mischief at work. Thus another honorary secretary wrote, some time since: "I am sorry to have to state that the Working Men's Club and Institute at W—— has been discontinued. We had notice to quit the premises, a brewer having contracted for them on a lease, at an advance of £8 on the rent we paid, and no other eligible premises offered. Our rooms were, unfortunately, not in a sufficiently central situation, though the best that offered; and a low 'Alhambra Palace,' opened in the same street, was sadly against us."

Yet a member of the council of our Union, who has some influential acquaintances in the neighbourhood, said to me, "Why, if we had known here [at our office] that they were being turned out of their house for £8 a year, I could have got them that sum in the neighbourhood two or three times over, or enough to help them to get other premises;" but, unhappily, they chose to die out in silence, without even letting us know in what straits they were placed. I visited that club once, and it happened to be the evening for their weekly entertainment. The largest room in the house was crowded; a lady was playing the piano; half-a-dozen members were giving some capital songs; others gave recitations; and everybody seemed to thoroughly enjoy the evening. That the club was well adapted, also, to meet the every-day wants of the humblest labourer was shown by the following fact, mentioned to me by the secretary on the occasion of the visit in question. Some time after the Club and Working Men's Institute had been opened, as the secretary was walking down one of the principal streets, a paviour stopped his work to say "Good morning" to him; then taking a purse out of his pocket, and shaking it before the face of the admiring secretary, he added: "It's all siller, master—all siller! —and I owe every penny of it to your place up yon. I haven't spent sixpence in the public-house sin' I joined it three months agone, 'cept Christmas-day, when a week's wages went all at once; but I shouldn't have gone there then, you see, if t'other place had been open."

We mention this incident just as it occurred, because it illustrates the "saving power" of these clubs and institutes, not as necessarily proving that they ought to be open on Christmas-day.

Here, however, is a case in which our much-abused, but deserving young friends, "the boys," were clearly quite guiltless of any share in the catastrophe. At the Club in another town (also beginning with W——) weekly dances and beer were gradually introduced. Disreputable characters naturally followed, and the Club, which at one time was doing a great deal of good among genuine working men, was broken up. The same remarks are suggested in this case as in regard to the dramatic entertainments that ruined the Club at B——, viz., that whether dancing be a desirable mode of relaxation, is not the question, but whether a Working Men's Club and Institute ought to be turned into a dancing club. A dance, "once and away," in a family, in an Odd Fellows' or Foresters' lodge, in a Working Men's Club and Institute, &c., may be a very pleasant and innocent thing if properly conducted; but clearly genuine working men don't want to be always dancing, nor do they want other people to be having a weekly "hop" on their premises. Such proceeding could only be carried on by persons who were serving their own ends, not aiming at the legitimate objects of a Working Men's Club and Institute.

Here is a case of break-down at H——. It would be difficult to attribute its failure to any particular want of good management or zeal; but it illustrates all the more strongly the need of good premises. The Club-house in this place had merely a few small rooms—no hall or large room for a weekly "free and easy," or other entertainment, not even a good-sized room for social chat and smoke. Now, this latter is almost essential to the success of a Club. Men are gregarious, and like large numbers just in proportion as they merely want society by way of relaxation. Working men who require this will not go and sit down in a small room where there are only two or three besides themselves. A hard-worked, tired man will sometimes peep into three or four public-houses (if he is not a regular frequenter of one in particular), and not stop at any of them until he sees one already well filled. That Club at H——, I believe, died of small rooms chiefly.

This verdict might be passed on several other Clubs besides. It would apply to B—— G——, for instance, and to two Clubs in H—— (London), but in all three cases that evil was combined with want of sufficient co-operation and genial management to make the Clubs attractive to working men, and to give them that "welcome" of which I spoke in a former paper. But enough of this dismal work for the present. Let us turn again, for a short time, to our friend's

RAMBLES AMONG WORKING MEN'S CLUBS AND INSTITUTES.

"In B——, whither I went from C——, three attempts have been made to establish Working Men's Clubs. The working men of that city, however, have, so far, evinced the most complete incapacity to manage such institutions themselves. In each of the three instances they had the advantage of most liberal help from wealthy members of other classes; but their mismanagement was such that in one case—that of the St. P—— Working Men's Club—the institution perished after a very brief existence, leaving one of the gentlemen who had taken an interest in it a loser by it to the amount of more than £100; and in the other two cases—that of the C—— P—— Working Men's Club and Institute and that of the St. J—— Workmen's Hall—the control of the affairs of the institutions has had to be entirely withdrawn from the management of the members of them.

"The C—— P—— Working Men's Club and Institute was opened in December, 1863. It occupies extensive and commodious premises, comprising a large reading-room, a smoking and conversation-room, two large class-rooms, a room devoted to committee and other meetings, a very large lecture-hall, a bagatelle-room, a bowling saloon, and a refreshment-room and kitchen. At first, it paid a rent of £80 for these premises, but the rent has since been reduced to £60. The Club commenced very prosperously indeed—the balance-sheet for the first six months, December 21st, 1863, to June 25th, 1864, showing that its receipts during that half-year amounted to no less than £431 2s. 5d. Of this sum, £140 10s. 8d. was derived from members' subscriptions, and the fees for admission of non-members to the entertainments given in connection with the Club; the remaining £289 11s. 9d. consisting of donations. The expenditure during the first six months, including the expense of furnishing the club-house, was only £325 10s. 2d., so that the Club began its second half-year with £105 12s. 3d. in hand. Notwithstanding, however, that it began its second half-year with this handsome balance, and that its income during that period amounted to nearly £120 (due exclusively to members' subscriptions and the proceeds of concerts, &c.), at the end of the half-year the Club was in debt £28 6s. 6d. At the end of the first quarter of 1865 the debt was increased to over £56, and it had become most plainly apparent that the committee of the Club had no capacity whatever for managing business affairs. The result was, that Mr. —— ——, in order to keep the Club open, generously offered to pay its debts, and to take upon his own shoulders (for, at least, the remainder of the year) the entire responsibility of carrying it on. This was the footing upon which things were at the time of my visit, in July: Mr. —— —— paying all the expenses of the Club, and receiving all its receipts. Mr. —— was just then much occupied with election affairs, and was undecided, I believe, as to what he would ultimately do in the matter.

"But for bad financial management, the C—— P—— Club would have been eminently successful. It has never been short of members, and might readily have been made quite self-supporting. Its abundantly-supplied reading-room, its commodious bowling-saloon, and its comfortable conversation, smoking, and games' rooms—in all of which, except the reading-room, the members can be served with wholesome refreshments, at very cheap rates —have all proved very attractive; and so have its entertainments and classes. Throughout 1864 at least two entertainments were given per week, summer and winter, and for six or seven weeks in the winter season three entertainments were given per week. The entertainments have consisted of recitations, songs, &c., the reciters and singers all giving their services gratuitously. The members have been admitted to the entertainments free, and non-members on payment of one penny each. The hall in which the entertainments are given is of considerable size, but in the winter season it has frequently happened that from fifty to 100 more persons have presented themselves for admission than could possibly be got into it. The number of non-members paying for admission has usually been between 100 and 150. The classes in operation at the time of my visit were (1) a Tonic Sol-fa Singing Class, averaging an attendance of from forty to eighty persons; (2) an Elocution Class, with an average attendance of from ten to twenty-five persons; (3) a French Class, attended by an average of about six persons; and (4) a Mechanical Drawing Class, attended by about a dozen persons. The classes all met once a week; the teachers of them were all members of the Club, and all *gave* their services; and members of the club were admitted to them all free. At the time of my visit, the arrangements with respect to members' subscriptions were different from what they had been until a few weeks previously.

* Continued from page 299.

The rates of subscriptions were originally, for ordinary members, 2s. 6d. per quarter, 4s. per half-year, or 7s. 6d. per annum, or, for females, 1s. 6d., 2s. 6d., and 5s. respectively, and until the end of the first quarter of this year the greater number of the members had paid their subscriptions quarterly. At the commencement of the second quarter of this year, however, the affairs of the club were in such an unsettled state that it was deemed advisable not to issue, for a time, at least, any more tickets extending over a period of more than one week, and at the time of my visit the club had accordingly no holders of either quarterly, half-yearly, or yearly tickets, and admission was to be had only by weekly tickets, price threepence each, or else by payment of one penny per visit. The weekly tickets admitted to all parts of the club, including the bagatelle-room, and to the full privileges of membership, including the right to attend the classes and entertainments; but the payment of one penny only admitted into the building once, and then only to the reading-room, bowling saloon, and dominoes and draughts room. There were about sixty holders of weekly tickets, and the average number of admissions on payment of a penny per time was about two hundred per week. The proceeds of the entertainments, which were still—in July—being given once a week, probably raised the total income of the club to about £2 per week. As the expenses of the club are about £250 a year—rent, £60; manager's salary, £50; coal and gas, £50; pianiste, £26; newspapers, £13; printing, £20; sundries, £10; total, £253—it was thus, at the time of my visit, far from paying its way. This, however, was at the very worst part of the year, and the previous experience of the club left little room for doubt that ordinarily prudent management was all that was needed to make the club quite self-supporting, taking one season with another."

HOW WATT MADE HIS GREAT DISCOVERY.

In order to follow the track of investigation pursued by Watt, it is necessary for a moment to revert to the action of the Newcomen pumping engine. A beam, moving upon a centre, had affixed to one end of it a chain attached to the piston of the pump, and at the other a chain attached to a piston that fitted into the steam cylinder. It was by driving this latter piston up and down the cylinder that the pump was worked. To communicate the necessary movement to the piston, the steam generated in a boiler was admitted to the bottom of the cylinder, forcing out the air through a valve, when its pressure on the under side of the piston counterbalanced the pressure of the atmosphere on its upper side. The piston, thus placed between two equal forces, was drawn up to the top of the cylinder by the greater weight of the pump-gear at the opposite extremity of the beam. The steam, so far, only discharged the office which was performed by the air it displaced; but, if the air had been allowed to remain, the piston once at the top of the cylinder could not have returned, being pressed as much by the atmosphere underneath as by the atmosphere above it. The steam, on the contrary, which was admitted by the exclusion of the air, could be condensed, and a vacuum created, by injecting cold water through the bottom of the cylinder. The piston being now unsupported, was forced down by the pressure of the atmosphere on its upper surface. When the piston reached the bottom, the steam was again let in, and the process was repeated. Such was the engine in ordinary use for pumping water at the time that Watt begun his investigations. Among his other experiments, he constructed a boiler, which showed by inspection the quantity of water evaporated in any given time, and the quantity of steam used in every stroke of the engine. He was astonished to discover that a small quantity of water, in the form of steam, heated a large quantity of cold water injected into the cylinder for the purpose of cooling it; and upon further examination he ascertained that steam heated six times its weight of cold water to 212°, which was the temperature of the steam itself. "Being struck with this remarkable fact," says Watt, "and not understanding the reason of it, I mentioned it to my friend Dr. Black, who then explained to me his doctrine of latent heat, which he had taught for some time before this period (the summer of 1764); but having myself been occupied by the pursuits of business, if I had heard of it I had not attended to it, when I thus stumbled upon one of the material facts by which that beautiful theory is supported." When Watt found that water, in its conversion into vapour, became such a reservoir of heat, he was more than ever bent on economising it; for the great waste of heat, involving so heavy a consumption of fuel, was felt to be the principal obstacle to the extended employment of steam as a motive power. He accordingly endeavoured, with the same quantity of fuel, at once to increase the production of steam, and to diminish its waste. He increased the heating surface of the boiler, by making flues through it; he even made his boiler of wood, as being a worse conductor of heat than the brickwork which surrounds common furnaces; and he cased the cylinders and all the conducting pipes in materials which conducted heat very slowly. But none of these contrivances were effectual; for it turned out that the chief expenditure of steam, and consequently of fuel, in the Newcomen engine, was occasioned by the reheating of the cylinder after the steam had been condensed, and the cylinder was consequently cooled by the injection into it of the cold water. Nearly four-fifths of the whole steam employed was condensed on its first admission, before the surplus could act upon the piston. Watt therefore came to the conclusion, that to make a perfect steam-engine, it was necessary that the cylinder should be always as hot as the steam that entered it; but it was equally necessary that the steam should be condensed when the piston descended,—nay, that it should be cooled down below 100°, or a considerable amount of vapour would be given off, which would resist the descent of the piston, and diminish the power of the engine. Thus the cylinder was never to be at a less temperature than 212°, and yet at each descent of the piston it was to be less than 100°; conditions which, on the very face of them, seem to be wholly incompatible.—*Smiles's Lives of Boulton and Watt.*

John Critchley Prince.

Within the last few days another of our workmen-poets has disappeared from the workshop of life. John Critchley Prince, one of the sweetest and purest-toned of the Lancashire bards, died on Saturday, the 5th inst., at Hyde, near Manchester. In his "Peerage of Poverty," the Rev. E. Paxton Hood thus mentions Prince:—

"Without claiming for him, by any means, the foremost place in the ranks of those who have united together literature and labour, it may yet be said of him that he possesses that moral insight which is the foundation of genius—the pictorial eye and utterance in a pre-eminent degree. He has also been educated by suffering, by labour, and wonderfully by communion and fellowship with Nature. He is a reed-maker for weavers, to which trade he was put at the age of nine years, and compelled to continue at it for fourteen or sixteen hours a day. Every indication of a love of books was sought to be repressed by his father.

"There is no doubt that these adverse circumstances may have depressed the full development of his poetic genius, but *that* strong principle of his nature, poverty, want, and punishment were unable to exterminate. A mind skilled in tracing moral effects to their causes might be able to prove that the strong love of freedom, which so nobly characterises the poet's compositions, was in a large measure developed by the harsh treatment to which, in his early youth, he was subjected; and that the ardent love of Nature which breathes through his strains was heightened by contrasting the gay and joyous life of the inhabitants of woods and wilds, and the beauty and harmony of trees, streams, and flowers, with the unrelieved and still-recurring toil of his own occupation, carried on in the poverty-stricken chamber—

"Where the pale artist plies the sickly trade.'

All the adverse circumstances that surrounded him were unable to 'freeze up the genial current of his soul;' the passion was intense, and *would* be gratified. When the family had retired to rest, often would young Prince, at the 'witching hour of night,' leave his bed, and, with furtive steps and slow, creep down-stairs, and, by the dim light of the 'slacked' fire, revel in the charms of 'Robinson Crusoe,' or the horrible and mysterious grandeur of Ann Radcliffe and Monk Lewis. The native longings of his heart found a rich banquet in the wild and wondrous of these tales; and the beautiful description of natural scenery which gives such a charm to 'The Mysteries of Udolpho,' and the free scope for inventive genius in the solitariness of Defoe's shipwrecked mariner, fed the enthusiasm of the embryo bard, and made him sigh to visit foreign lands, and meet with 'moving accidents by flood and field.'

"We can very well conceive that sentiments like those embodied in the following magnificent stanzas would be felt at this period of his life, if not thus expressed:—

"Did God set his fountains of light in the skies,
That man should look up with the tears in his eyes?
Did God make his earth so abundant and fair,
That man should look down with a groan of despair?
Did God fill this earth with harmonious life,
That man should go forth with destruction and strife?
Did God scatter freedom o'er mountain and wave,
That man should exist as a tyrant and slave?
Away with so heartless, so hopeless a creed,—
The soul that believes it is darkened indeed!'

A hard matter, one would suppose it to be, to hold fast faith in God and man, in a life chequered as Prince's was by the most sad suffering and misfortune. His whole early life was passed in poverty; and when labour entirely failed in England, he travelled over the Continent in search of employment. He reached Paris just about the revolution of 1830. He travelled on foot through Champagne, Mulhausen, and St. Quentin, but all his efforts to obtain work were fruitless; so with ten sous in his pocket, in the middle of the winter, he set off with the intention of walking the whole of the way home to Hyde, Lancashire; and journeying by the banks of the Rhine, through Strasbourg, Nancy, Verdun, Luneville, Rheims, and Chalons, he reached Calais, procured a passage from the British Consul, and once more set foot in England.

"During this toilsome journey he subsisted on the charity of the few English residents whom he found on his way. He lay in four different hospitals for the night, but not once in the open air, as he did afterwards in his own country. The first night after his arrival he applied for food and shelter at a workhouse in Kent, and was thrust into a miserable garret, with the roof sloping to the floor, where he was incarcerated along with twelve others—eight men and four women, chiefly Irish—the lame, the halt, and the blind. Some were in a high state of fever, and were raving for drink, which was denied to them; for the door was locked, and those outside, like the bare walls within, were deaf to their cries. Weary and way-worn, he lay down on the only vacant place amid this mass of misery, at the back of an old woman who appeared to be in a dying state; but he could get no rest for the groans of the wretched around him. Joyfully did he indeed hail the first beam of morning that broke through the crannies of this chamber of famine and disease; and when the keeper came to let him out, his bed-fellow was dead!

"Released from this lazar-house, he proceeded onward, penniless and shoeless, towards London, begging in the day-time and lying in the open fields at night. When he reached London he had been the whole day without food. To allay the dreadful—but to him the familiar—cravings of hunger, he went to Rag Fair, and, taking off his waistcoat, sold it for eightpence. He then bought a penny loaf to mitigate his hunger, and four pennyworth of writing-paper, with which he entered a tavern, and, calling for a pint of porter, proceeded to the writing of as much of his own poetry as his paper would contain, and this amid the riot and noise of a number of coalheavers and others.

"As soon as he had done his task, he went round to a number of booksellers, hoping to sell his manuscript for a shilling or two, but the hope was vain. The appearance and manners of the famishing bard, to these mercantile men, were against him—he could not succeed in finding a customer for his poetry, or sympathy for his sufferings.

"He stayed in London during two days, wandering by day, foodless, through its magnificent and wealth-fraught streets, and pacing about, or lying on the cold stones in gateways, or on the bare steps of the affluent, by night.

"Meantime, his family also, in his absence, had suffered almost as much as himself; he returned to privations still more bitter than those he had known in the course of his journey. At last, through the kindness of J. P. Westhead, Esq., M.P., he was drawn forth from his obscurity, and a volume of poems published, which called forth extraordinary laudations from the various critical journals. His writings, to his honour, abound in most cheerful views of life; there is nothing misanthropic in his lyrics. He has passed through the deepest waters and fires of suffering without losing his heart or hope; and his verses overflow with glowing aspirations for human progress, and moral and intellectual advancement."

At the time of his death, John Critchley Prince had attained his sixtieth year.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; John Stuart Mill, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; and the Rev. J. Begg, D.D.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

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What to do with the Proposed Victoria Park Gas-Works.

There never was a vice but it found some defenders; even Burke ventured the opinion that vice itself was improved and almost made presentable when divested of grossness and made graceful. There never was a nuisance but it had champions. Some time ago, and not a long time either, we had a metropolitan M.P. who took up the cause of cesspools. When Paternoster Row, a few years since, bore a strong scent of tallow—so much so that a gentleman who bought a book there took home an undesirable flavour of "long eights" in his pockets—worthy cits volunteered evidence that a smell of tallow was wholesome, and ought to be cherished. Now the Hon. Mr. Cowper comes forward almost in praise of gas fumes. He told the House of Commons the other night, in effect, that he did not think the proposed gas-works at Victoria Park would prove so very bad. They could be so conducted as not to be a nuisance, or if a nuisance, not a serious one.

We think Mr. Cowper's view of the case may be subjected to a very practical test. Gas companies in question might adjourn their operations from Victoria to Hyde Park. We should soon hear then what opinion is formed of their salubrity. There is a nice vacant space near the Brompton Boilers, which nobody seems able to fill up satisfactorily; there is the vast area where the International Exhibition stood. It is still unappropriated; in fact, there is a constant dispute going on as to what shall be done with the space. Some want it for horticultural and some for art purposes. If Parliament can be persuaded to furnish the money, it is intended to convert the spot into a vast temple-ground of art and science. At present, however, the public are not agreed as to what they want, nor has Mr. Gladstone agreed to furnish the money; but we have no doubt, if Mr. Cowper should go down to the House of Commons with a grand project for uniting all the gas companies there, the scheme—if his own account of the operations of the gas manufacture may be trusted—would be highly popular. They want something grandly novel in that neighbourhood, and having, at the same time, a dash of the scientific in it. It therefore strikes us that these gas companies, according to Mr. Cowper's account, are exactly the thing wanted. To consume 2,000 tons of coal per day, without making any smoke worth mentioning, is certainly a feat in chemical art which has never yet been realised, and it would be of the highest practical advantage to the country to have it proved that the thing could be done. Mr. Cowper thinks that clauses could be inserted in the Gas Companies' Bill which would oblige them to consume, make away with, or remove certain deleterious ingredients used in gas manufacture; but who are to see these rules carried out, and be the guardians of the health of the residents around? In the neighbourhood of Victoria Park and Hackney Wick, this duty—which will require considerable chemical knowledge and vigilance to apply—is sure to be imperfectly performed. It will require an association to enforce the companies' rules over many acres of operations. Now, this is precisely the duty which some of the societies already established in South Kensington could undertake, and raise gas-making into the rank of a fine art, as well as convert it into a salubrious profession. If Mr. Cowper's view of the matter is correct, there is no doubt this can be done; and we are sure that none of the operations or services rendered by any of the very useful societies and training schools in that neighbourhood, can be compared with the advantages to society, and, indeed, to human life, which they would thus render.

The public of London owe much to Mr. Cowper for the admirable improvements which he has made in the parks under his care. He has given us parterres in Regent's Park, and made bare fields bloom like an Eastern garden; he has even supplied chairs for the weary and admiring public to sit down upon, where they may truly "rest and be thankful." The working-class public owe much to Mr. Cowper. His courtesy and taste we do full justice to; but he might take in hand this Chartered nuisance at Victoria Park, which would be harmless, on his theory, at Kensington.

The effluvia caused by ammoniacal liquor and other refuse of gas-works, he admitted, is not savoury; yet he felt—these were his words—"that no just ground could be shown for apprehending that any inconvenience would be felt by the frequenters of Victoria Park from the existence of gas-works in the neighbourhood, properly superintended and conducted." Then there will be none felt at Kensington, for they can be "properly superintended and conducted" there. We believe it will be shown that gas-works are beneficial in cases of consumption; they will, therefore, be a valuable addition to the Brompton neighbourhood, where there is an hospital for the cure of consumption. Mr. Cowper has already the "Brompton Boilers" there, and gas-works would only seem an appropriate accompaniment. It has not occurred to Mr. Cowper what a popular solution of the Victoria Park gas question this would be. It would put an end to all agitation, delay, or compromise. We beg to present the idea to our popular Commissioner of Public Works.

The promoters of the Gas Bills before Parliament have published their reasons in support of their claims, and they tread closely on the heels of the official logic of Mr. Cowper. That honourable gentleman reminded the House of Commons that "there were already artificial manure works and others of a most disagreeable and prejudicial character in the vicinity of the Park." This alone ought to be a reason why Parliament should take care that there are no more introduced, not a reason why the House should be reconciled to further nuisances. But official logic has laws of its own. The promoters of the Gas Bills follow the same course of reasoning. They say that if they do not establish their works there, private companies may occupy the spot and do worse than they contemplate doing. This is, no doubt, true. There never was an evil which might not be succeeded by a worse. But the common-sense question is, Will or will not Parliament interfere to protect a park of the poor, in a populous neighbourhood, from practical destruction? We think the people have a casé for consideration, and so Parliament decided when it emphatically threw out the bill of the Imperial Gas Company.

But the Chartered Gas Company have yet to be dealt with, and this being the case, Mr. Cowper cannot do better than act upon our suggestion. On the day of the present writing we have taken an opportunity of inspecting our proposed site at Brompton for the Victoria Park Gas-Works; and looking at that hideous erection, the "Brompton Boilers," which our Fine Art Commissioners cherish, we are of opinion that a gas-works would be a "thing of beauty and a joy for ever" by their side; and therefore, on æsthetic as well as on sanitary grounds, we have hope that Mr. Cowper will listen to our proposal; and if he does we shall be inclined to suggest that a monument be put up in honour of Mr. Cowper on the spot now selected as the site of the gas-works adjoining Victoria Park. The whole population of Hackney Wick and Bow will hail this graceful and grateful erection as a happy and honoured substitute for the repugnant, repellent, deleterious, and abhorred gas-works.

Since we had written so far, the House of Commons has thrown out one of the Gas Bills which threatened Victoria Park; and Mr. Cowper very mercifully contributed to the result; Mr. Beresford Hope rendering important assistance. However, the gas-works must go somewhere, and they may, perhaps, be thankful for our suggestion of the Kensington site.

The Logic of Mr. Lowe.

When Mr. A. Peel made his maiden speech in the House of Commons, a few weeks since, he spoke of "that Goliath of logic, Mr. Lowe." That Mr. Lowe is a man of brilliant parts, and can see farther into a millstone than most men, is true. But it is also true that he takes up positions which startle the common sense of ordinary men, and makes great orations and threatens the destruction of English institutions, without an atom of cause or sufficient reason assigned.

For instance, in his great speech against Mr. Baines's Reform Bill, he showed, first, that Mr. Baines's arguments would cover universal suffrage, and forthwith grew eloquent on the dangers of that, forgetful that Mr. Baines's Bill would only effect a very narrow extension of the suffrage. Next he showed that nobody really cared for electoral power. If so, there could be, as every one sees, no danger in granting it. Again, he told of Australian experience, which proved that when universal suffrage was enacted there, a shilling fine was inflicted on all electors, as a registration fee, which had the effect of disfranchising

half the Australian nation. This argument proved that if we had universal suffrage enacted one day in England, a fine of eighteen pence per elector would save the nation. Instead of our institutions being destroyed, we should have only to consent to enrich our exchequer, and all danger would be averted. But these screaming fallacies are emitted in retorts so glittering and in language so racy, that it is impossible not to enioy them while you despise them. Mr. Lowe's arguments are like that poetical logic which frequent quotation has made familiar to all. In the lines, to wit,

> "My wound is great because it is so small;
> Then 'twould be greater were it none at all,"

the second line is given as a brilliant refutation of the first. It is very sparkling, but it is no reply. A small wound may be as great an outrage as a large one; just as stealing a penny is as much robbery as stealing a thousand pounds. The argument is, that if there be a wound wrongly given it is great; even its smallness may be an aggravation, as combining full malice with the intended evasion of consequences because of its apparent minuteness. If something wrong be done, the wrong may be great in principle though minute in fact. But the first line supposes that some wrong is really done. The reply assumes that nothing whatever is done, and then that the infinite consequences equally follow. When some one said—

> "He who rules our freemen must himself be free,"

or words to that effect, Dr. Johnson replied, in ridicule and refutation—

> "He who drives fat oxen must himself be fat."

Now, there is a moral connection between moral qualities in a ruler and the same qualities in the ruled. There is a relation between the political liberty of the governor and that of the governed; but there is no physical relation between the obesity of the driver and the oxen whom he goads along. So that the epigrammatic answer of Dr. Johnson amuses but does not confuse us. Mr. Lowe used precisely the same argument in the late Reform debate, in reply to Mr. Milner Gibson.

Mr. Lowe remarked—"My honourable friend says, there is a constituency which has become corrupt; let us turn on the pure water of a £7 franchise. That doctrine might be sound if my right honourable friend could establish the doctrine that health is catching, like disease. If I have half-a-dozen cattle ill of the cattle plague, and I turn in amongst them a hundred other cattle who are healthy, I infect the new ones, and do not much good to the old ones." Now health, being a state of individual soundness, is not communicable like the particles of decay where disease is present. The things compared are different; but in morals there are common relations between the principles and conduct of men. Everybody knows that good company is an influence as well as bad company; that moral circumstances have effects. "Evil communications corrupt good manners," is an aphorism thousands of years old; and the converse is true, that good communications will refine and reform bad manners. To answer one position by another that looks exactly like it, but is radically different, is ingenuity often amounting to wit, but is not logic, which requires an adherence to relevant facts. Again, when Mr. Lowe adverted to Mr. Gladstone's speeches which recognised the right of humanity to representation, saying, if any portion of the people are proposed for admission to the suffrage, it rests upon those who object to their admission to show their unfitness, he (Mr. Lowe) represented that this was an argument in favour of universal suffrage, which it was not. It carefully guarded against it. But if it were an argument in favour of universal suffrage, it need not fill Mr. Lowe with the "gloomiest forebodings," as he alleged, because the Bill before the Parliament was not a measure of universal suffrage, but merely the creation of a new electoral guild—a worshipful company of

VENETIAN LAVABO, SEVENTEENTH CENTURY.

seven-pounders. This practice of taking enormous premises, and maintaining that all the evils which might flow from them will occur when a ridiculously minor measure is put in operation, is absurd; and this application of evils, which might exist if something not intended is done, to a measure which cannot produce them, is known in the House of Commons as "Lowe logic."

The man who returned a borrowed kettle with a hole in it, and argued that he did not create the aperture, for the hole was already there; and secondly, there was no hole at all; and thirdly, that he never borrowed the kettle in the first instance, is only an illustration of a good deal of Parliamentary logic which a brilliant audacity offers and a prejudiced party accepts. We do not here concern ourselves which side is right in the contest on Reform; we only address ourselves to what Lord Grosvenor and Lord Stanley call a "method of procedure." Never were fallacies more glaring advanced with so much vivacity as Mr. Lowe threw into them. Working men in Parliament might not be so brilliant—it is not possible that they could be more unsound.

The Artist Workman.

VENETIAN LAVABO OF THE SEVENTEENTH CENTURY.

The little earthenware and copper fountains which we meet with in such large numbers in curiosity shops are the last vestiges of a kind of furniture, very common during the Middle Ages, which continued in general use up to the beginning of the last century.

In the refectories of monastic establishments, in the dining-halls of castles, palaces, and inns, *lavaboes*, sometimes of large dimensions, were fixed in the building, and constructed of lead, stone, marble, or bronze. Sometimes they were movable, and placed in niches in the wall, sustained by a console, or resting on an iron foot. The large *lavaboes*, consisting of a capacious basin or cistern, furnished with taps and spouts, were adapted for abbeys, where a number of persons washed at the same time before and after meals. In castles and mansions a basin and ewer sufficed for ordinary purposes: they were presented to the master of the house and his guests when they seated themselves at table and when they rose from it. The niches which still exist in the halls of ancient chateaux testify that *lavaboes* were sometimes pieces of furniture of very considerable dimensions, to which a particular place was assigned.

To understand how much this kind of furniture was indispensable, it must be remembered that, until a very recent period, forks were not seen even upon the most sumptuous tables, and that, also, for a long time it was the practice for two persons to eat off the same platter, and many from the same dish. In the Middle Ages, as in the East at the present day, more regard was paid to splendour than to cleanliness. For the same reason, spoons were supplied to the guests to convey liquid messes on to their plates, but in small numbers—one for each person during the whole dinner—but no forks. They ate meat, fish, and all solid food with their fingers, and delicate-minded persons gave rules for using them properly. During the thirteenth century they had forks for some particular dishes, but not as a general rule. This state of things prevailed at the tables of royalty. Among the wealthy classes there was nothing of the kind. It was not until the seventeenth century that forks came into general use.

To this period belongs the Venetian *lavabo* of our engraving. The basin, ewer, and the little shell-shaped dish beneath it are of copper; the stand is of hammered iron; so is the stem, crowned by *fleur-de-lis* ornaments, which form a double cross. The ornaments placed at the extremity of the branches around the ewer are coloured and gilt. The horizontal iron stem projecting above on the right served to hold the towel. The weather-cock, which represents a cavalier in the costume of the period, appears to be a sign, probably, of the inn for which the *lavabo* was constructed.

Strength of Iron Girders.—Mr. Fairbairn states that "wrought-iron girders of ordinary construction are not safe when submitted to violent disturbances equivalent to one-third of the weight that would break them."

The Language of the Workshop.

It might surprise an English inquirer into nautical philology to learn that much of the language of shipboard was very good Dutch, Low German, and even French. It might shock his national pride to find that the terse phraseology over which he had been accustomed to chuckle, as so thoroughly English, was but the echo of the language of the Havre de Grace, the Vorsetzen at Hamburg, or was borrowed from the dictionary (if he had one) of Van Tromp. Yet this is the simple truth; and the same common parentage may be traced in much of the ordinary language of the goldsmith's workshop. Although, like water-worn pebbles, the technical words there in use are now smooth enough English, if we trace their original structure we shall find that in grain they are often German or French.

It is not, of course, here intended to trace the etymology of general language, but merely to show, and endeavour to explain, in what cases the English language of the workshop has been supplied from foreign sources. It would not be requisite, for example, to dwell upon the fact that the word *goldsmith* is our English version of the German *Goldschmidt*, or that *Juwelier* and *joaillier* are the German and French of our own term *jeweller*. These derivations are so obvious, and belong so completely to the ordinary process of transmutation of one language into another, that they do not claim especial notice. But there are words of daily use among workmen, which have been so completely distorted in the passage from the foreign into the English language, that they not only could never be recognised in the tongue to which they originally belonged, but they have absolutely either no meaning, or an entirely false one, out of the narrow circle of their daily use. What, for instance, is a *sparrow-hawk?* We know there is a small species of falcon of that name, but this fact will not lead us far in the solution of our question. The *sparrow-hawk* of the jeweller's shop is no bird at all, but, as every workman knows, a small anvil with two pointed ends, one round and one square. Why, then, a *sparrow-hawk?* Simply because it is derived from the German word *Sperrhaken*, a closing or riveting hook. This is intelligible enough; but having no meaning to an English ear, it has been altered to mean something, however far removed that something was from its actual signification. In French, the tool *sparrow-hawk* is called a *bigon*, and in some parts of England a *bickern*, evidently derived from the same word. Is it not possible that they may both be alterations of the Latin *bicorne*—two-horned or hooked? Time has done stranger things, in the way of transmutation of tongues, than this.

Then we have an ominous-looking word not at all fitted for a tool in the hand of so peaceful a man as a jeweller—a *bull-sticker*. What on earth has he to do with a *bull-sticker*—a weapon only fitted for a Jewish slaughter-house? We have only to bring back the word to its original shape of *Boll-stichel*, the German for a rounded graver, and the matter is at once clear. But what is most curious, the German himself does not use the same word *Boll-stichel* to describe the tool for which its mis-interpretation is employed in England. He, more appropriately, calls the same kind of graver an *Ajustirzeiger*, a word which accurately describes the purpose—that of adjusting stones for setting—for which the tool is employed. *Apropos* of this subject of gravers—or scorpers, as we call them—among jewellers, it is curious to note that the English workman does not describe the act of opening the holes for stones for the setter as *adjusting* the aperture, but dropping the prefix, and otherwise distorting the word, speaks of it as a process of *jestening*. Of course, he means to say *adjust*, but habit being stronger than reflection, he takes the word as he finds it, and as it comes readiest to his tongue. In the same way, he never anneals his work, he only *neals* it, the prefix *an* being a redundancy which, in his industrious pre-occupation, he has not time to repeat. These are but trifles, and to keep to the letter in such matters might often savour of pedantry; but it is, at any rate, well to know what one means. The word *scorper*, which is used among English setters as a generic term for almost every kind of graver—except the graver *per se*, which they never use—appears at first inexplicable. Certainly it is not an alteration of scooper, as that term—besides that it is not English at all, *scoop* being the proper word to give the meaning intended—by no means expresses the ordinary signification which it is intended to convey. Setting is not scooping; and it is most probable that the word *scorper* is an Anglicism for *échope*, the ordinary French term for the burin, or any kind of graver used in jewellery. The English *spitsticker* is only a modification of the German *Spitzstichel*, a pointed graver.

We have another word which has not its full signification to English ears—the word *corn-tongs*. Tongs we can understand, although it appears scarcely appropriate in the present instance; but what idea is meant to be conveyed by *corn*, as used in this case? If we were to seek a thoroughly English word to describe the small, neat pair of spring clippers of which we speak, and which are in constant use by both the mounter and the setter, and quite indispensable to the dealer in precious stones, we have one at our hand at once in the word *tweezers*. But although a pair of tweezers may be an admirable implement on a dressing-table, it will not answer, however like in shape and character, for the corn-tongs of the jeweller's workshop. The German word, *Kornzange*, is the original of our *corn-tongs*, only that the High German word *Zange*, meaning *pliers*, has been softened into *Tonge* in the Low German, which has more affinity to the English or old Saxon. The word *Korn*, with its plural, *Körne*, means a small grain, or particle of anything; and thus a pair of small spring pliers, to pick up or arrange small stones, or minute portions of work, is completely described by the word *Kornzange*, or *corn-tongs*. While upon the subject of pliers, it is noteworthy that, although the word *pliers* is French, from *plier*, to bend, the French themselves do not use it; nor, indeed, do they possess a noun from that root, but substitute another word, *tenailles*—from *tenir*, to hold—in its place. Both the French and Germans speak of pliers in the singular, instead of in the plural, as with us. But this habit is not confined to this word alone; *a* shears, *a* scissors, *a* tongs, *a* snuffers, are all perfectly correct with them, while the Englishman is only satisfied to speak of these pieces of mechanism as in pairs; and not unreasonably either, for, on the same principle, the Frenchman and the German talk of *a* trousers, but who ever heard of *a legs?*

Facts and Memoranda.

Tailors.—We have a saying amongst us that nine tailors make a man. However depreciating our saying may be to that "great maker of men," that of the Chinese is still more so, for they say, "the tailor is the greatest sinner in the world." No sooner has a piece of stuff been finished with infinite toil and industry, than he proceeds to cut it with his huge scissors into unsightly pieces. A Chinese tailor never uses a measuring tape. Instead of trying the arm at the shoulder, the elbow, the wrist, the leg at the hip, the knee, the ankle, the width across the shoulders, the girth of the body, he does all this at a glance; and, with a knowing look, appears to say, "Hum! a little taller than I am, somewhat stouter, a little broader across the shoulders;" or at the most a foot-rule, in a carpenter-like, style is run over the person.

The French Playing Card Manufacture.—To those who indulge in card-playing the following details will have some interest:—French card manufacturers inhabit the Quartiers Bonne Nouvelle, St. Méry, and St. Victor. There are seventeen of these head men, of whom nine employ above eleven workmen. Employing 260 persons in all, card manufacturers make, on an average, 2,000,000 in the year. Of these 260 persons 167 are men, 78 women, and 15 either boy or girl apprentices under sixteen years of age. The men are overseers, painters, pasteboard makers, gummers, cutters, moulders, polishers, bellows-blowers, and porters. The women are sorters, scrapers, pressers. The men work either by contract or by the day, and earn from 4f. to 7f. The women earn from 1f. 50c. to 3f. Apprentices from 75c. (that is 7½d.) to 1f. 50c. They have two hours for meals in their twelve hours' work. Of 67 who can read and write, 15 are noted for bad conduct, and 15 seldom come to work on Mondays. The 78 women are well conducted. All the apprentices are children of workmen, and have been placed by their parents. Card manufacturers pay 30 per cent. (3d.) for the paper band which is round every pack of thirty-two or fifty-two cards. They purchase the paper from the Administration of Indirect Contributions, on which are the faces and ace of clubs, and also the paper on which they themselves print the points. The paper costs, in the first instance, 30f., and in the second, 22f. for 1,000 sheets, which suffice to manufacture 24,000 cards. In 1860 the duties paid on cards used in France alone amounted to 1,395,155f., which was an increase of 200,000f., or £800., on the sum thus paid to Government in 1856.

Coal-cutting Machines.—It has long been matter for surprise that these machines have made so little progress in the hard coals of Northumberland. Several of them have been ordered for some time, but, so far as we are aware, only one has yet been got to work; that is at the Netherton Colliery. We noticed some time ago that the machine had been commenced, and it is gratifying to know that it is now in full work, and is going on most admirably; it is, indeed, a most decided success. It was before explained in this letter that this machine is precisely similar to the "hydraulic coal-cutter," which has been successfully worked some time at the Kippax Colliery, near Leeds. It is by far the most successful machine of the kind yet brought into operation. The motive-power is water, compressed to a high degree by means of a force-pump, worked by a steam-engine, the water being conveyed to the machine, by means of iron pipes, to a considerable distance. The mode of cutting the coal, or shale, adopted in this machine is quite novel, and totally different from that in the pick machines, the process being similar to the action of a slotting-machine. The bar on which are fixed the cutters acting direct from the machine, and the fixing of the machine to the spot where it is required to work, and its progress forwards as the coal is holed, being entirely self-acting, so that when it is once got into working order, very little attendance is required. The Netherton machine, as we have remarked above, is doing excellent work; it cuts the shale underneath the seam, thus preserving the entire seam of coal, and this it does at the rate of 80 square feet per hour, completing about 86 yards in length and 3 ft. 3 in. depth of cutting in ten hours. The coal thus undermined is said to produce 100 tons of good saleable coal. The success of this machine will, no doubt, hasten the adoption of similar machines at other works. One of them has been received at Cramlington, but has not yet been erected, and others are ordered, one, we believe, for the Backworth Colliery.—*Mining Journal.*

*Window Plants and their Culture.**

Amongst easily grown window-flowers, the auricula must be included. The chief requisites for its successful cultivation are plenty of air, with entire freedom from frost, and shading when in flower from the bright rays of the sun. About February, take off the tops of the pots as much earth as will come without injuring the roots, and add some fresh, consisting of equal parts of rich earth and well-decayed manure from the cow-house or the hot-bed. The auricula flowers will be much improved by an occasional watering of manure water, avoiding guano, which would be apt to injure the plants. When the plants are going into blossom, the flowers will be more regular and larger, if some of the buds are taken off with a pair of scissors, so as to give the rest room. The auricula is increased by offsets, which spring up round the plant, and for new varieties, by growing the seed in pans without heat.

The geranium is the next plant to be treated of. Under the popular name "geranium" there are several species included; the name really belonging to those which are like the common scarlet. The proper name of the large flowering kind is pelargonium. However, as the treatment of all is very much alike, they shall be classed together in this chapter, and the peculiarities of treatment necessary to each will be pointed out.

The scarlet varieties are most easily increased by cuttings struck in spring, which will flower the same year, if well grown. Cuttings will grow from March until August. The directions already given being followed, the cuttings will be sure to grow. For these kinds heat is not requisite. For winter treatment, begin to reduce the supply of water, and when the leaves wither, take them all off. The plants, after this treatment, may be put aside in some airy place, where the temperature will be just above freezing point. Throughout the winter, keep the earth just damp, not wet, so that it may not be in powder. In March, they will begin to grow, when the supply of water will need to be increased, and the plants placed in a favourable position as regards light and air. The plants will flower with much more vigour, if the old earth is removed off the top of the pot, as far as possible, without injury to the roots, and its place supplied with fresh. With plenty of water, a little attention as to removing decayed leaves and the seed-vessels as the flowers fall off,

* Continued from page 291.

and now and then a little manure-water, they can be kept in blossom until late in the year. Old plants produce more flowers than young ones, and by judicious pruning they will last in beauty for many summers. They do not require large pots; a pot eight inches across will do for a plant three feet high.

The pelargeniums, or large flowering varieties, may be treated as above in respect to growing cuttings. They are much improved by close pruning. As soon as the flowering season is over, and the shoots are getting ripened, cut them down to three or four inches in length, and for a few days do not give them much water. When the young shoots begin to grow, re-pot the plants —if necessary in larger pots; but if the pots they are in are not filled with roots, rub the outside earth off the top and sides of the ball, and put it back in the same pot, supplying fresh rich earth. The large flowering varieties will not stand so much cold and want of care as the scarlet and its varieties. Though plants in large pots require less care in watering, that is the only advantage they possess; if proper care be bestowed upon the same plants in smaller pots, the flowers will be much finer. The *fancy* varieties require more care during winter, and the cuttings do not grow so freely without a little heat. In other respects, the treatment for windows is just the same as above, except that they do not bear as much pruning.

Another very suitable plant for window decoration is the petunia, both in the single and double varieties. It is easily raised from seed for varieties of single flowers. The double varieties are increased by side-sheets, about one or two inches long, slipped off the main branches; and after a couple of the lower leaves are taken off, plant them in pans of light, sandy soil: they will strike freely, and begin to flower very soon. The nicest way to manage them, is trained over a trellis, or else allow three or four stems to grow long, and tie them as they advance to a single stick placed in the centre of the pot. There is a double purple variety with white spots which looks very beautiful when in full blossom, the flowers are so large and lasting. It continues in bloom for several months in summer.

The calla, or, as it is generally called, the white arum plant, is a very handsome flower for a large window. It is readily increased by division of the roots. It flowers in the spring, and while in a growing state it is one of those few plants that require to have plenty of water always in the saucer. As winter approaches, begin to curtail the supply, and throughout the winter months keep the earth nearly dry. It requires a stiff, clayey loam, with just a little sand or vegetable mould.

Nearly every person has grown the common musk for the sake of its pleasant perfume. It requires, while growing, plenty of water. It is readily increased by division of the roots.

The mimulus, or monkey-flower, of which the above is a variety, also makes a showy window-plant. New varieties are readily obtained by sowing the seed in pots. It will flower the same season it is sown. Old varieties may be grown with ease from division of the roots, or from cuttings from the root or branches, which strike very quickly. While flowering, give plenty of water.

Cactus and mesembryanthemums are among the most easily managed of pot plants; indeed, they seem to thrive upon neglect. To imitate their native climate, they must be kept barely alive during the summer and winter months, from the time the flowering season is over; but while they are growing and flowering, they require plenty of water. The chief care they require is an occasional sponging of their fleshy leaves and stalks, so as to free them from constantly-accumulating dust. They grow best in small pots. Of mesembryanthemums there are numberless varieties, all more or less suited for window culture. Their blossoms are of every shade of colour, and possess a beautiful metallic lustre when the sun shines on them.

The common begonia, which rejoices in so many English names, such as elephant's ear, resurrection plant, or, as I have known it to be called, "end of the world plant," when well grown, makes a fine pot-plant when in blossom. It grows best in sandy loam and well-decayed manure. It requires plenty of water while growing, and during the winter perfect dryness and protection from frost.

Out of Work.

Never mind what my name is. It would be no good to you if you knew. Perhaps it's Brown, or Jones, or Smith. Perhaps it's something else. If you can put me up to a job, do. If you can't do that, lend me half-a-crown, and that will be more to the purpose than asking what my name is. I *am* out of work, there's no mistake about it, and have been so now for nigh six weeks. And I tell you what it is, being out of work don't improve anybody's temper, so if I speak a bit roughish you need not be offended. It isn't just the pleasantest thing in the world to be tramping about day after day to shop after shop, and get nothing but "No, we don't want anybody—very slack just now." It isn't much breakfast a fellow gets before he starts in the morning; and it's precious little dinner there is for the old woman and the four young ones. The rent has not been paid for the last month, that's a fact; and if the landlord don't seize soon, there will not be much left for him. My best coat and boots went first, then the missus's Sunday gown; then our bit of a looking-glass, and the clock; then the fire-irons, and the blankets off the beds. And if I don't get a job before the week's over, the bed will go too—that is, if the landlord don't put a man in before Saturday.

It isn't likely that I should be very lively, is it? or very good-tempered when I go home, and have got no money to give the old woman. Precious little supper we have, and the missus gets cross, and says she don't believe a man who knows his trade so well as I do ought to be out of work, and that it's all my own fault, and she wishes she or the little ones were dead, she does. The pawnbroker don't open before eight o'clock in the morning, and then one of us slips out with a bundle of anything we can make up, and lucky we are if we get enough on it for a quartern loaf, a dab of tenpenny butter, and half an ounce of coffee. And that has to do for breakfast, dinner, and tea, for six of us. And that won't last long, I can tell you; and what will be next, I don't know. I won't go into the house, and if the relieving officer shows his face, and gives us any of his bounce, he'll just get something he won't like. As for the landlord, he may seize, and be hanged. I am just about desperate, and don't care.

No; it isn't the first time I have been out of work. Not by a good many. I have been out through badness of the times, out on strike, and out because I got a drop too much overnight, and wasn't going to stand the governor's talking to me; but I have almost had enough of it. When I was out on strike, it was for nearly three months, and I had an allowance from the society. But it was not half enough to live on; and, besides, I got lazy, and did not care about doing work when I got it again. We went out for short time, and we got it. So I left off work an hour earlier, and we were so pleased with our victory, that I and two or three more of us used to go to the public to talk about it, and say that we ought always to stand up for such things. But I suppose I talked about it too much; for I made short time, too, in the morning, and could hardly tell the difference between a jack-plane and a mortising-chisel when I got to the shop. So the foreman sacked me, and I was out of work again for a month; and if the old woman didn't jaw me, my name isn't what it is.

Some men that I know make their wives go out to work, and it would not be lucky for them to talk about short time. What's good for the gander isn't good for the goose in that case, I can tell you. They have to pull out pretty strong, from seven in the morning till nine at night, for two shillings a day and their victuals; and if they don't bring home something for their husbands' supper, they had better look out, that's all. But I never could bring myself to that. When I first knew my missus, she was a smart, tidy girl, with a pretty face, and we started together very comfortably; and though now-a-days, when trouble touches us, neither of us has the best temper in the world, I can't be such a brute as to make her suffer more than I can help, for what, perhaps, is more my own fault than that of anybody else.

I suppose great folks have troubles, though they keep them from the world, and if they knew our out-of-work troubles, perhaps they would feel that we are all of us very much the same flesh and bleed after all. I have seen some awful sights, I can tell you. I knew a fellow who began well enough, but who went regularly downhill. He never could keep in one shop, was out of work half his time, and, at last, didn't seem to care whether he had work to do or not. Careless and desperate altogether, violent and brutal, too. Perhaps it was despair made him savage; perhaps his wife nagged him too much; but it would have been a mercy if she had been quiet in the grave. I knew her when she wasn't half a bad-looking girl, and their rooms were comfortable enough. But there isn't a stick there now; all gone, and friends are gone, too; and if there ever was any love, that's gone, too; and she screams and scolds, and he swears and threatens. It isn't more than a week ago he and I were standing together, wishing we could find twopence for a pint, when she crawled round the corner, caught hold of him, and looked in his face with her eyes close to his. Pale and dirty, hungry and vicious, beaten down by poverty and misery, she glared at him, and hissed rather than spoke as she asked him for money. He pushed her off, and swore at her; and then if she didn't curse him to his face, and tell him he was murdering her and the little ones, and she would never leave his side, but go about with him, and tell everybody what a lazy, drunken hound he was. I saw something in his face, and I stepped between them; but he pushed me away, and in another minute his rough, strong hand shet out into his poor wife's face, and she fell backwards, bleeding, on to the hard stones.

That's one little bit of out-of-work life I have seen. It isn't always so bad, but it's sometimes even worse. There was another man I knew, and he had a long spell of it. It wasn't exactly his own fault, either, for he was a steady chap; but things went against him. They had about come to the worst, when one night he and I were going along by the canal there at Bow. We had been tramping about all day, and were right down tired. "I can't stand it much longer," he said, and then he stopped and looked serious. It was a dull sort of night, and the water was dark and dirty, and went along with a sort of thump, thump, against the banks. "It wouldn't take much to put an end to it," he said, and looked right into the muddy water before us. I saw that he trembled, and turned very white about the mouth. "Just you come along," I shouted; "come along with you, and don't say that again." And I caught hold of him, and almost dragged him away from the canal. I never left go of him till I had got him home; and then, sure enough, we found he had been sent for to a job in a good shop, and there he is now, and likely to keep there.

If you want to have the blues, be out of work for a week or two; or if you want to know what landlords can say, or what loan societies are like, or what sort of fellows pawnbrokers are, or how chandler's shop-keepers can say nasty, sneering things, or how miserable the wife and children can be, or how easily good temper changes into bad, or how wretched it is to be in debt, and under somebody's thumb, or what queer thoughts can come into the head, especially at night-time—just, as I said, be out of work for a few weeks. You won't like to repeat the experiment.

As for me, I am out of work now, and don't see my way to a job. But sooner would I break stones by the roadside, or sweep the streets—ay, sooner be out of the way altogether, than be out of work.

THE WORKMAN'S CITY.

The Paris correspondent of a Birmingham paper writes:—"The *Cité Ouvriere*, just completed by the Brothers Japy, the great manufacturers of hardware in Paris, is regarded as a very revelation by all who have been so long eager to solve that most difficult of all questions—great accommodation involving little labour —privacy for the home of the working man. It was the fashion in former times to begin the description of a work with the description of the author. In this case the portrait may be painted in the most flattering colours, and needs no varnish. The wondrous achievements in industry accomplished by the brothers have become matters of history. At the great London Exhibition they obtained the prize medal for cheapness in the section of clocks and watches, beating out of the field, not only in workmanship but in price, their Swiss and American rivals. Since that time they have perfected their machinery to such an extent, that they are enabled to furnish articles of domestic use at a lower rate than any other manufacturers. The emigrants

from Germany to America and Australia find it worth their while to land at Havre, in order to provide themselves with the panakius and beef-steak pans made by Japy. The cooking cans furnished for the camp at Chobham were made by Japy Brothers, and several heavy contracts for the British colonies have been likewise executed by them. 'You never can make so cheap or so well certain utensils in iron or tin plate,' says Japy triumphantly, 'because of the cheapness of your raw material!' The argument takes the listener by surprise, but the solution arrives quickly, 'and therefore it has never been worth your while to perfect your machinery!' And with this good Japy points to his wonderful machine, which, with the sole management of a boy, can turn out 1,200 frying-pans a day. 'It is by cheapness alone that we have grown rich,' says Japy. 'This lesson we took from the English manufacturers, and we are now resolved to beat our masters in that one principle by every means of honourable competition in our power.' The marvels of cheapness to be presented at the Great Exhibition by Japy Brothers are said to surpass everything of the kind yet beheld. The late Mr. Cobden was so struck by the earnestness with which these great manufacturers were pursuing this object, evidently destined to become the most important of all in the industrial arts of the future, that he made the journey to Beaucourt in the Haut-Rhin for the express purpose of enabling himself to judge of the comparative resources of their factory with those of Birmingham. He returned overwhelmed with surprise at the results obtained, and described the extraordinary sensations with which he ascertained beyond all doubt that Japy Brothers, by dint of adopting every suggestion offered by their workmen, and thus combining the inventions of science with the experience of practice, had arrived at such perfection in their machinery that the raw material (at that time paying a heavy duty), after having reached Beaucourt with expense of carriage, could be manufactured into a utensil of household use, and returned to England again, paying carriage and duty a second time as a manufactured article, and yet upon sale leave a handsome profit to the manufacturer. It is at this same factory of Beaucourt in the Haut-Rhin that the Brothers Japy have been enabled to realise another problem which has puzzled the political economists of all ages—that of a comfortable existence for the workmen, which shall combine the habits of cleanliness and independence of the *bourgeois* classes, with the strict economy needful to ensure expenditure within the limits of his income, and at the same time leave a surplus for the necessities of sickness and old age. The experiment of creating not merely a fitting habitation for the workman, but an actual property, has been already tried, but in the case of Beaucourt has been alone successful. The company has arrived, by comparison and study of other attempts of the same kind at Mulhouse and Guebuillé, to the complete levelling of all difficulties. The company, moreover, disclaims all profit, and merely seeks utility as reward for the risk and trouble incurred in the construction of the Model City, pronounced to be the very perfection of that idea which has been germinating in the brain of every philanthropist as the necessary complement to the scheme of universal education, by which alone humanity can hope to be saved. The capital of the company amounts to 100,000 francs, in shares of 100 francs only, so that the workman himself will be enabled to contribute to the work. Interest at 5 per cent. is guaranteed by Japy Brothers. The design for the habitations was communicated by one of the workmen, whose experience had taught him to recognise the weak points of the other institutions of the same nature. Each dwelling is composed of a ground-floor, with cellar, and the door of the habitation opens on the kitchen, in the corner of which is the staircase, leading to a wide granary or lumber room beyond in the roof. Behind the kitchen is a large room, and to the left another chamber of ample size, communicating with a third. All four rooms are large, lofty, and well aired.

The value of these tenements, containing, as you may observe, space enough for the accommodation of a large family, is not more than 2,000 francs, while those of Mulhouse, with one room less, and no staircase or granary, are not to be purchased under 2,500 francs. The ground on which the *Cité* of Beaucourt is built is a free gift on the part of the Brothers Japy, and payment of the building has been secured by a novel combination of interests worth recording. To every purchaser a credit of 2,000 francs is opened. The term accorded for payment is eleven years, by instalments, payable at the purchaser's own convenience. No particular date is fixed for receiving the instalments, provided the whole be paid off by the term appointed. The company demands no further indemnity for the risk of building. The result of this amicable arrangement has been that four of the houses are already paid for *in toto*, and the first year of the experiment is not yet expired. Another fact worthy of remark is that the construction of each tenement is only commenced upon demand of the workman who is to become its occupant and ultimate purchaser. Thus the *Cité Beaucourt*, begun in August, 1865, displays already a goodly row of ninety-seven houses, each with its little patch of garden ground, its trim porch and trailing plants presenting to the eye a true picture of health, comfort, and cleanliness not to be surpassed even in England. The plan of the buildings is peculiar likewise. The houses are run up in rows on each side of the street, blocks alternating, so that the air and light are freely admitted, and the inconvenience of opposite neighbours wholly avoided. At present the experiment made by the Brothers Japy may be considered as wholly successful, but the slow and prudent method of construction may conduce to a greater degree of perfection still."

Things Talked About.

If ever the editor of a popular periodical, bound to record the stirring events of the day, could realise the picture sketched by Artemus Ward of the politician who had always a "good stock of impending crisis on hand," it is just now. Abroad, the expectation of immediate and terrible war is paralysing speculation and crippling industry, and the effects are already felt in the households of the middle and working classes. At home, there is such a monetary panic as has not been paralleled for more than forty years. The memorable year '25, which brought sorrow to so many, is now referred to as the only period comparable to this present '66. The railway panic, twenty years ago, was, at its worst, not so bad as the crisis we are now passing through. The failure of the great discount house, Overend, Gurney, and Co., has involved so many other large establishments, and on those, again, depend a multitude of smaller firms and employers of labour, that the keenest financial vision must fail to trace the course of the disaster. But we may assuredly predict that it will penetrate to the remotest verge of the kingdom, and be felt in every department of our national industry. The approaching war—or even the threat of war—is already interfering with the foreign transactions of our manufacturing firms, and should the struggle be protracted, German and Italian capital will no longer flow into our markets.

None can say, then, that working men have not a vital interest in watching the course of events. We speak in all sincerity, believing that we have their best interests at heart, when we beg of them to consider the position in which their employers and themselves may be placed. This is no time to press extreme demands, to raise questions which will still further embarrass the operations of capitalists and employers. Many large undertakings will probably be affected, and the number of skilled workmen wanting employment be added to. Masters will possibly have to pay dearly for the capital requisite to carry on works of imperative necessity. Trade bills may have to be discounted on crippling terms, and customers will stretch their credit to the full. Only in the union of interests can there be safety. *The employers' difficulty is not the workmen's opportunity.* Add agitation and strikes to commercial distress, and the result will be such as any man might shrink from contemplating. The permission given by the Government to the Bank of England to increase its issue of notes will no doubt avert the worst consequences; but there is enough of difficulty left to make all classes think seriously.

The Imperial Gas Company will *not* pollute Victoria Park with poisonous fumes. The agitation has been so far successful that the House of Commons would not suffer the Bill to go a second reading, or even into committee, with the chance of the obnoxious clauses being a little modified. Lord John Manners and Mr. Beresford Hope led the attack; Mr. Cowper, on the part of the Government, faintly supported. No one had a word to say in favour of the Bill, and so Mr. Staniland, the member for Boston, who had it in charge, withdrew it altogether, to save the disgrace of an overwhelming majority against him on division. The Chartered Gas Company's project has now to be dealt with.

Not only the Imperial and the Chartered, but the other London gas companies must prepare to meet the public on another point—the price of gas, a question of great interest to all manufacturers, and, indeed, the community generally. We have every reason to believe in the truth of the following statements, which we find in the columns of an influential daily newspaper:—"Whilst London has been paying 4s. 6d. per 1,000 cubic feet of gas giving an illuminating power equal to 12 sperm candles, Manchester has been paying only 3s. 6d. for the same quantity, giving an illuminating power of 20 candles; in other words, 850 feet of light have been given for the same price as 1,000 feet in London. The cost of the public lighting in Manchester has been 25s. a lamp, against an average of £5 in London, and beyond all this upwards of one million of money has been spent in improvements in the city of Manchester out of the profits of the gas-works, and this in the face of the fact that whereas coke, the principal residual product of gas manufacture, fetches in London more than half the price of the coal, in Manchester it is nearly unsaleable. In Walsall, the Corporation supply gas to the citizens in direct competition with one of the wealthiest companies in England, obtain a handsome profit, and keep the price of gas lower in the town than in any other district supplied by the same company." In Birmingham, gas of superior illuminating power is supplied at 1s. per 1,000 feet less than in London; in Sheffield, 7d. less; and in Edinburgh and Glasgow (more than twice the illuminating power) only 5d. more. We could extend the list, but these instances are sufficient to show what enormous profits the London companies must be making.

From gas to coal is an easy transition, and we note with some satisfaction that we are likely to have more trustworthy data for estimating the probable duration of our coal supply than the statements on which arguments of a sensational character have lately been founded. The Government have consulted the Geological Society, through the president, Sir Roderick Murchison, on the subject, and some valuable information will doubtless soon be supplied. In the meanwhile, the *Times* gives unusual prominence to an article "from a correspondent," who evidently is an authority on the subject, and remarkably confirms the views we expressed a week or two since. The writer says that, even supposing the estimate of the future yield of the British coal-fields to be correct, its exhaustion within the next hundred years, as predicted, can only take place supposing these improbable contingencies to become facts:—The population of the British Isles must, within that term, increase to 576,000,000 (nearly half the present population of the globe); the railway lines in England must be 24 times their present length; the same ratio of increase must take place in the production of pig-iron; and the number of persons engaged in the iron manufacture must be multiplied by 26. As none of these things are likely to occur—it would be difficult to find room in England for twenty times its present population, for instance—we may make ourselves tolerably easy as to the duration of our coal supply.

The Working Man is already quoted as an authority in discussions on the condition of the working classes. In a paper read at a recent social meeting of the Working Men's Club and Institute Union, Mr. Bainbridge made a special reference to our articles. We are pleased at this testimony to the success of our efforts.

The Operatives' House Building Company are about to purchase, as the scene of their first operations, some land in Old Pye Street, Westminster, now occupied by most miserable habitations, which will be speedily demolished, and improved dwellings for working men placed on the site. The company have had a meeting at the residence of the Marquis of Townsend, who presided; and the objects of the company were warmly advocated and supported.

The Liverpool Town Council, influenced apparently by a letter from Mr. John Stuart Mill, have agreed to devote certain corporate lands for sale for the erection of labourers' dwellings, and to purchase a quantity of land in the centre of the town for a similar purpose. Mr. Mill, in his letter, states the case with his customary felicitous terseness:—"If I thought that such a measure would injure the independence of the working classes, or encourage their improvidence, I should strenuously oppose it. But the case seems to me to be one of a class of cases in which people require artificial help to enable them afterwards to help themselves."

The dockyard labourers at Portsmouth have memorialised the Admiralty for an increase of pay. The present wages are positively inadequate to the support of the men and their families. We hope they will not be snubbed by the authorities as the Post Office servants have been. Many of the rural letter-carriers have appealed to the public to assist them in dispensing with a Sunday delivery; and, in consequence, "general instructions" have been issued from the Secretary's department, in which all the men are informed that, "For the letter-carriers and others to take an active part in soliciting the interference of the public in their official duties is objectionable on obvious grounds, and the distribution of such letters, even out of official hours, is in direct violation of the regulations of the service."

Several dyers at Leeds have been committed to prison with hard labour for intimidating and assaulting their fellow-workmen; and at Guildhall, London, a tailors' cutter has been sent to prison for a month for absenting himself from work without permission. It is not generally known what punishment the law allows for the offence of quitting work without due notice. Three months' imprisonment with hard labour may be awarded.

General Information.

CLUBS AND INSTITUTES.

Child's Hill, Finchley Road.—The Working Men's Club and Institute in this place held a tea-meeting on the 7th instant, when Dr. Lankester, president of the club, and coroner for Middlesex, occupied the chair, and the Rev. H. Solly gave an address. Although the population of this village is very small, the club numbers eighty members, and is in a highly prosperous and hopeful condition. Mr. Morse, its active secretary, read an interesting report, and the chairman summed up the proceedings with an earnest appeal to the working men to support the club and extend its usefulness. Hearty votes of thanks to that gentleman and Mr. Solly concluded the meeting. A handsome present of interesting books from J. Gurney Hoare, Esq., was placed on the table during the evening.

South Staffordshire Adult Education Society.—This useful society, in consequence of a resolution

adopted at the Working Men's Club and Institute Conference, held in Bilston last November, having considered the requirements of Working Men's Clubs in this district, resolved on dividing their work into three departments, under the management of district Boards. One of these is specially devoted to Working Men's Clubs, and held its quarterly meeting on the 30th ult. at West Bromwich. The attendance was not large, and several of the reports were far from encouraging; but the delegates from Birmingham, Heath, and Oldbury reported very favourably. The Clubs also at Wednesbury and Wolverhampton are doing very well. After tea had been dispatched, and Mr. Jones, the secretary, had read the reports sent to him, an interesting discussion took place in regard to the best mode of keeping numbers together in the summer months. The Rev. H. Solly, who attended to represent the Parent society, recommended out-door games, whenever ground could be procured, and especially athletic sports, which can be carried on in a much smaller space. He suggested that these might always be made preparatory to a general out-door festival for the whole town and neighbourhood, to be held towards the end of the summer, at which there should be a competition for prizes, and which would give zest and additional interest to the exercises and trials of skill throughout the season. Field-classes, with botany and natural history excursions, were also suggested. Mr. Jones approved of both suggestions, but said that the festivals, in general, must be confined to each particular locality, on account of the impossibility of getting holidays at all (or even many), of the works in South Staffordshire on the same day. A long and important discussion then followed on the question proposed by the Working Men's Club and Union for a prize essay, namely, "What social changes or other measures would procure a larger attendance of working men at these Clubs and Institutes?" Several of the delegates expressed a strong opinion that in South Staffordshire, where the work is very hot and exhausting, the men would never attend the Clubs in any large numbers unless they could have their glass of ale at them. Mr. Solly urged the arguments against this view, which were given in full length in his letter to the friends at Leicester,* and maintained that, under a system in which drinking was allowed at other than meal times, in the way of mere tippling, the Club would soon become little better than a mere beer-shop. Some of the delegates replied that it would make all the difference if the men were relieved from the pressure of the landlord, and that what, in fact, was wanted was co-operative public-houses, which, they considered, would completely meet the present evils, and would be a stepping-stone to something better. It was ultimately settled that the whole subject should be brought forward for special discussion at the next delegate meeting, towards the end of June, and efforts should be made to secure a large attendance of delegates. In the course of the evening James Solly, Esq., J.P., iron-master, expressed his belief that the large employers of the district would lend any reasonable assistance in promoting the objects of the meeting, but quite agreed with the delegates that it would be far better if such measures could be devised as would bring the men to the Clubs in numbers sufficient to make them self-supporting, without any extraneous aid. The help of the iron-masters might, however, be very valuable in giving opportunity for bringing the whole subject under the notice of their men. Thanks being voted to Mr. Guest, of Handsworth, who occupied the chair, and to the Rev. H. Solly, for his attendance, the meeting separated.

Working Men's Club and Institute Union.—On Thursday evening last the anniversary festival of this institution was held at the Freemasons' Tavern. His Grace the Duke of Argyll took the chair, supported by Earl Grosvenor, the Earl of Lichfield, Lord Lyttelton, Major-General Lord Frederick Paulett, Hon. Dudley Fortescue, M.P., Mr. Samuel Solly, F.R.S., Mr. Layard, M.P., Mr. Davenport Bromley, M.P., Sir John Pakington, M.P., &c. After proposing the health of the clergy of all denominations, and denouncing temperately, but strongly, the introduction of any sectarian differences into these Clubs, the chairman gave the toast of the evening, "Success to the Working Men's Club and Institute Union." His Grace did this at considerable length, and vindicated Trades' Unions and similar combinations of labour from the charges he alleged had been unfairly brought against them. He claimed that these associations did no more for their fellow-workmen than the Parliament had done for these workmen's wives and children in limiting the hours of labour under the Factory Act. That Act was passed to prevent excessive competition of labour bringing about a system of overwork, and as Parliament had declined to include in the same Act the adult male labourers, the Trades' Unions had been striving, and not altogether without success, to obtain the same end for themselves. Some of these organisations had very large annual funds, and these were on the whole economically distributed. It was true, unfortunately, perhaps, that the working men did not as a body contribute to these Clubs; nor did the Trades' Unions support them. On the whole, however, he thought it was not very desirable, considering the main views with which those organisations of labour were formed, that they should have the support, and therefore virtually the control, of such associated institutes as that the cause of which he most earnestly then commended to the benevolent consideration of his hearers. He was pleased to find the progress which the movement had made, but he was of opinion that it required the support of the middle and upper classes, and also of the Church, to make them in every way valuable institutions, and permanently serviceable to the country. After paying a high compliment to the Rev. H. Solly for the great exertions he had made to forward the movement, the Duke of Argyll concluded by recommending the Working Men's Club and Institute Union in London, and all over the country, to the sympathy and support of all friends of the working classes. The Duke of Argyll next gave the "President and Vice-Presidents," remarking that Lord Brougham was, as they were aware, the president of the Union, and he believed that it had few better or truer friends. The Earl of Lichfield, one of the vice-presidents, responded, and declared his conviction to be that if they wanted to make these clubs successful, they must make them as attractive as possible. He referred to the present licensing system, and pointed out the necessity which existed for some improvement and some legislation. Sir J. Pakington, M.P., proposed the health of the noble chairman, and agreed with the Duke of Argyll in the belief that all classes of politicians were harmonious upon one point, and that was, the promotion of the prosperity of the working people of the country. With respect to the education question, he could not agree that these clubs could not always be made to answer the purpose of mechanics' institutes. Amongst other toasts were "The Council," responded to by Mr. Morgan Thomas; "The Organising Director, Rev. H. Solly," by Lord Lyttelton; "The Social Elevation of the Working Classes;" "Harmonious Co-operation between all Classes of Society;" and "Prosperity to the Clubs," responded to by working men. The noble duke's speech was loudly cheered, and a satisfactory list of subscriptions rewarded his exertions on behalf of the institute whose cause he had advocated. All the arrangements connected with the dinner were admirably managed, and a most pleasant evening was passed.

EMIGRATION.

Emigration from the Iron and Coal Districts.—Last year a vast number of colliers and ironworkers, with their wives and families, emigrated from the mining districts of South Wales to America—in fact, the exodus was so great that it was with difficulty many of the works could be kept fully and regularly going. At the beginning of the present spring a similar movement pervaded the district; and in consequence of the numbers that broke up their homes for the purpose of emigrating to the New World, fears began to be entertained that the operations of the iron works and the collieries—more especially the latter—would be again seriously interfered with. Several letters, however, have lately been received from those who went out last year, giving a most deplorable picture of the state of things in the United States, and warning those at home to stay where they are well off. This has had the effect of materially checking the emigration movement, and most of those who were making preparations to take their departure have changed their minds, and have determined to remain in the country, being at last convinced that a moderate rate of wages and regular employment are to be preferred to the uncertain result of emigration to the States.

Co-operative Intelligence.

Mansfield Co-operative Society.—This society has just issued its seventh quarterly report, which states that the profit made this quarter will allow a dividend of 1s. 8d. in the pound to members on their purchases, and 10d. to non-members, besides placing £9 15s. 10d. to the reserve fund, and £3 13s. 2d. to the educational fund. From the financial statement, it also appears that £2,035 1s. 6d. has been taken in the stores during the quarter, and that 131 entrance fees had been received during the same period. The profit on the sale of goods during the quarter had been £145 14s. 7¾d. So numerous are the applications for membership, that the society intends, for a time, to decline taking in more members.

Blakey Moor Industrial Co-operative Society (Limited).—The twentieth quarterly report of this society has just been published. From it we learn that the society is making rapid progress. During the quarter ninety-eight new members have been admitted, and only two have withdrawn, which makes the present number 383. Goods have been sold to the amount of £2,944 9s. 9d., being an increase on the previous quarter of £907 11s. 3½d., and £1,697 15s. 9d. on the corresponding quarter of last year. The profits resulting therefrom, after deducting working expenses, interest on shares, depreciating the fixed stock, and allowing non-members 6d. in the pound, amount to £168 7s., which will give a dividend of 1s. 4d. in the pound to members on all purchases, and leave a balance of £1 4s. 4d. to the reserve fund. A brief review of what has already been accomplished by this society must be gratifying to all who desire to extend its usefulness. Though it has only been in existence five years, and, as is well known, during much of that time Lancashire has been suffering from a depression of trade almost unparalleled, it has sold goods to the amount of £22,752 8s. 11d., by which a profit of £1,310 1s. 3½d. has been realised, which has been disposed of as follows:—£65 3s. to non-members, and £1,184 3s. 8½d. to members in proportion to their purchases through the stores, leaving a balance as a reserve fund of £60 4s. 1d. The profits derived by purchasing at a Co-operative store instead of the shops of retail dealers, must have been of great service to many during the late bad times.

Northampton Progressionists' Industrial Society.—The members of this society held their twenty-ninth quarterly meeting on the 8th instant, when the report for the past quarter was laid before them by the committee of management. From the report it appeared that the business done was over £8,000, on which is realised, after paying all working and necessary expenses of management, a net profit of £838 15s. 8d. The committee advised a further subscription of four guineas to the General Infirmary, in addition to the usual annual subscription of £4 4s.; and they also advise an additional subscription of two guineas to the Homœopathic Dispensary, in addition to the same amount which they already subscribe. Allowing a dividend of 2s. in the pound on members' purchases, a balance of £12 14s. 4d. would be left to carry forward, besides £188 14s. 10¼d. in the hands of the treasurer or in the bank. The committee, at the solicitation of several members, purpose establishing, in connection with the society, a coal club, and also a clothing club. The reading-rooms in Grafton Street and Wellingborough Road are fitted up with every comfort and convenience, and supplied with the local and leading newspapers, magazines, and periodicals of the day. There is also a library, consisting of above 800 volumes of standard works on a variety of subjects, which are circulated free for the use of the members of the society. The report was unanimously adopted.

Gateshead Industrial Co-operative Society.—The nineteenth quarterly report shows that during the quarter fifty-nine new members have been enrolled, and that ten have withdrawn, leaving 466 on the register. The sales during the quarter have amounted to £2,824 1s. 1¼d., being an increase of £355 16s. 3½d. over the previous quarter, and have produced gross profits of £392 12s. 1½d., or 16 per cent., which, after deducting working and other expenses, leaves a net profit of £244 9s. 3¾d., or 10 per cent., which has been divided as follows, namely:—£10 to the reduction of the fixed stock; £4 4s. 1¾d. to the reserve fund; and the balance to a dividend of 1s. 10d. in the pound on members' purchases.

Co-operation in the Leven Valley.—A meeting was recently held at Haverthwaite to take into consideration the desirability of forming a Co-operative Society in the district. The majority of those present were working men, and all were in favour of a Co-operative Society being formed. A committee was named, several resolutions were passed, and the shares fixed at £1 each; no person to hold more than five shares. Nearly sixty shares have already been applied for, and the encouragement the promoters have met with is quite sufficient to justify them in carrying the matter forward.

Sowerby Bridge United District Flour Society (Limited).—According to the twenty-second half-yearly report, the flour sales have reached 24,151 packs, and the sale of other goods 15,152, making a total of 39,303, and being an increase of 6,303 packs over any previous half-year. The gross sales for the half-year amount to the sum of £55,700, being £11,719 in excess of last, and making an average of £2,140 per week. The profits are £2,941 3s. 10½d., which, after paying £591 6s. 7d., the interest due on members' investments, at the rate of £5 per cent. per annum, leaves a disposable balance of £2,349 17s. 3½d. The committee recommend a bonus of 10d. in the pound on the above £55,700, which will leave a balance undivided of £29 0s. 2½d. During the year just ended the society has sent out 72,924 packs of all kinds of goods, representing in cash the sum of £99,681 10s., and the capital has been increased from £18,478 19s. 2½d. to £24,988 1s. 3½d., thus giving a clear indication of progress and prosperity.

Clifton Co-operative Industrial Society.—The sixteenth half-yearly report of this association shows the receipts during the quarter to have been £3,856 18s. 6d. The liabilities are £926 6s. 11d.; the assets, £1,285 11s. 10d.; and the amount of dividend, 2s. in the pound.

Newcastle.—At the twentieth quarterly meeting of the Local Co-operative Association, the report for the quarter ending 4th of April was read by Mr. Proctor secretary, and unanimously adopted. Considerable progress has been made during the quarter, seventy-seven new members having been added, an increase of sales amounting to £332, and over the corresponding quarter of last year an increase of £920. After paying all charges, interest on capital, £5 10s. to depreciation of fixtures, and £3 18s. to reserve fund, there remained a dividend of 1s. 9d. in the pound for members' purchases. Arrangements have been made to commence immediately the butcher business.

* Since published by the Union as an Occasional Paper.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

UNITED STATES *versus* CANADA.

To the Editor of the Working Man.

Sir,—The letter of the correspondent writing for the *Times* from Canada, which you copy into the Working Man, under the heading "Emigration," in my opinion, is calculated to mislead persons who are, perhaps, contemplating emigrating to the United States, inasmuch as the statements are not correct. First, the correspondent says that the province is vastly different now from the United States, and, also, from what both were before the war. Then, he says, Canada paid taxes and duties; the United States paid none. This is untrue. The United States has always paid taxes. Labour found a good market in the States, and prices were low. Labour now finds a far better market there than for the last ten years, and at a higher rate of wages. Where it was one dollar it is now three, and more. It is Canada that holds out every inducement to emigrants, says the correspondent of the *Times*, and that in the very first part of the article. He might have waited to the end, or left the emigrant to judge for himself, after stating what he had to say. I say Canada does not hold out one-third the inducements to emigrants which the United States do, and I think I can prove it even by the correspondent's own statements. He says that prices are nearly thrice as high in New York as they are in Canada. Is New York or Chicago the United States, or are they only small parts of it? They are both great ports, which have a very fluctuating population, and prices in consequence are higher; but even then, ten cents a pound for beef in Canada against thirty cents in New York or Chicago is only at par or equal to one dollar a day, the rate of wages in Canada, against from three to four dollars a day in the United States. Mechanics and labourers who will go out West can get good beef at fifteen cents a pound, and have constant work at from two dollars for labourers to four dollars for mechanics. Again, New York is put for the United States, when every one who has been to America knows that prices are always nearly twice as high there as anywhere else in the United States, and emigrants do very wrong to remain in New York, as wages are lower and living much higher. Mechanics should remember that the reason of goods being cheaper in Canada than in the States is, that they go there free of duty, and thus the mechanic has to compete in Canada and Australia with low prices for all goods brought in there from England, so that he is but little better off there than here for that reason. In the States, better prices prevail for nearly every manufactured article. Then it is stated that there is no temptation to the Canadians to go over to the United States, nor are they craving to have the United States' debt put on their shoulders. The Canadians can hallloo just now. Let them be careful not to create a war debt. They may, perhaps, do so without any blame to themselves, as the Federals were compelled, in self-defence. Then again, during the United States war, Canada certainly did get a great influx of persons from the United States—runaways from the draft, deserters from the Federal army, and Confederate spies, raiders, and incendiaries; and if there are any who leave the United States now for Canada, to escape the just payment of their share of the United States' debt, I say good riddance of such mean and dishonourable people. They are no good to any nation. Now, to close these few remarks, I will only add that the truest part of the correspondent's letter is where he says that self-interest is perhaps the motive of the Canadian's enthusiasm and loyalty. At any rate they are dependent on England for their supplies, their prosperity, and protection. I am not in the least unfriendly to Canada. I wish it well, but I wish the United States well also. Let facts be made known on both sides. I am certain, even now, with high prices, heavy taxes, and some drawbacks—such as being a little unsettled—that the United States is a far preferable place to emigrate to than either Canada or Australia—I mean for all that live by their labour. Yours,

Fair Play.

ON SPITALFIELDS CO-OPERATION.

To the Editor of the Working Man.

Sir,—Many sincere friends of the working classes see more hope in the future for them from increased wisdom and moderation in the management of their Trades'-Unions than from the prospect of Co-operation being generally or extensively taken up by them. Whilst cordially rejoicing in the good done by the Co-operative system in many individual instances, these well-wishers regret that the ability and moral worth of the managers in these cases have not rather been devoted to the leading of the councils of the Unions, so as to make them as permanently useful to the workmen as possible. For, they say, in the most sanguine view of the future, Co-operation can never be expected to become more than an exceptional benefit to those whose high character well deserves to share its advantages. The great mass of working men must be benefited and elevated by a true understanding and recognition of their position as such in relation to their masters. But, frankly admitting this to its fullest extent, we see many exceptional cases where Co-operation is a priceless boon to the men whom it raises from desponding want to comfort and content. Perhaps there is no possible combination of circumstances in which all its blessings can be conferred, more unmixed with any possible alloy of attendant disadvantage, than in that of the Spitalfields silk-weavers.

The whole history of these men is full of painful interest; and hard indeed must be the heart that would not melt for them when they have "told their pitiful story." Originally driven by religious persecution from their native soil, they found, like many others, a safe refuge in our peaceful land, and amply repaid the benefit by their skilled labour, enriching and stimulating our manufacturing industry. Those familiar with the history of our most flourishing manufactures will remember many parallel cases in which we owe much to denizens from foreign lands. For long years this little Spitalfields colony worked on and prospered in the weaving of silk and velvet in their households, whilst generally respected for industry and good character. But since the employment of machinery in large factories, hand-loom weaving in cottages has been a doomed business. Sad indeed is the record of its struggles, with yearly lessening wages for increasing toil. For some time silk escaped the fate which has long overtaken cotton. To those who know how manfully the Rochdale and Middleton hand-loom weavers long toiled from dawn to the dark hours, literally at hand-grips with famine day by day, it is delightful to turn to the present prosperity of the Rochdale Co-operative Societies. Slowly but steadily the doom has overtaken the silk and velvet weaving, and the same sad struggle with inexorable decline has been carried on to the bitter end in Spitalfields.

Let us hope Co-operation, well managed, may prove their remedy. Many reasons, indeed, there are why it should be so. The last stronghold of this household weaving has been in the richer and more tasteful fabrics commanding a high price as articles of luxury, and where skill has yet some advantage over machinery in beauty of work, especially in figured textures and patterns. Surely, calling in the aid of good draughtsmen, Co-operation may win and keep here a little field of its own, and the just reward of superior skill be yet reaped by these workmen, now barely enabled by that skill to earn starvation wages. Let an influential London Committee be formed expressly for their help. The patronage of fashion will be willingly given when the case is fully known, for our women have their hearts in the right place in the highest as in the lowest ranks. If this Co-operative Society can only set and register taking designs in high-class goods, where price is cheerfully paid for style and taste, they would be patronised from the palaces throughout the land and flourish. Let us see how they can be helped. C.

PROFESSOR MAURICE.

To the Editor of the Working Man.

Dear Sir,—I see in your impression of to-day a critique on Mr. Maurice's "Working Man and the Franchise," in which the writer repeats the oft-recurring complaint that Mr. Maurice is too indefinite in the statement of his opinions.

As one of the audience to which the lectures now published were delivered, may I offer to the writer the suggestion that Mr. Maurice is a philosopher and a historian, not a legislator; and that it is his business to state broad principles, not to devise means for carrying them into practice?

Also, I think, it will be generally found that when Mr. Maurice does not state an opinion in clear, distinct terms, the cause is, not that he has not a very clear idea, but that either his modesty or his charity, or both combined, prevent him from speaking *ex cathedra*. He aims, I always think, not so much at parading his own opinions before the world, as at giving his readers facts and thoughts on which to form opinions for themselves; opinions which, by being thought out thus, are of infinitely greater breadth and worth than any taken ready made from another. Any one who can follow Mr. Maurice's train of thought will, I think, not often fail to find a very definite meaning very clearly expressed.—Dear Sir, your obedient servant,

William Rossiter.

Working Men's College, May 9th, 1866.

OVERWORKED RAILWAY SERVANTS, AND THE STRIKE ON THE LANCASHIRE AND YORKSHIRE RAILWAY.

To the Editor of the Working Man.

Sir,—Having recently seen in your columns several notices respecting railway men and their grievances, I beg to say there is no class of men at the present time more deserving of public notice than the persons employed upon the various lines of railway.

I have been among these people for many years, and, from being the representative of a society, the name of which you will see at the foot, I have seen and heard of the hardships which they have been obliged to endure. Exposed to all weathers night and day, and sometimes working twenty or thirty hours at a stretch, it is no wonder their constitution is broken; and when incapacitated by lost health or maimed limbs, they are left in too many cases to the cold hands of charity for support. Petitions to the various Boards of Directors have been useless, for when presented, the memorialists have been told that their grievances "shall be considered." But most of the men know now that when their appeals are left to the *consideration* of their employers, it is no use any of them ever expecting a reply. I believe this has been the cause of the men ceasing from work on the Lancashire and Yorkshire Railway. There they have been working fifteen, sixteen, seventeen, and as many as eighteen hours a day without anything extra; and it is to such overworked men as these that the public entrust their lives and property.

I have seen the drivers of goods trains fast asleep upon the "foot-plate," unconscious of the falling snow or rain; and more than one has told me that when travelling in the night the hours of labour have been so great that they have "dozed off," and when they have "started up again," they have only known where they were by passing some familiar spot.

In No. 15, in "Things Talked About," it is stated that if the men of the London, Brighton, and South Coast worked eighteen hours at a stretch, it was to suit their own convenience. I know not whether this be a fact, but this I know and can prove, that on several lines the signalmen are compelled to work eighteen hours, and should anything happen to those whose duty it is to relieve them, several of them would even be compelled to work longer than that.

The time will soon arrive when "excursions" will be running all over the kingdom, and it will perhaps surprise the public when they hear that many of these who have charge of the trains are men who have already been doing a day's work. Often the chief thing the passengers think about when they take their ticket is, How will they find the old folks at home? It would be also as well, perhaps, to think of those in charge of these trains who are employed to convey them to these happy homes, but which many have failed to reach through collisions and the like.

It has been asserted in different parts that I have been travelling from place to place inciting the railway men to strike. I beg to contradict this statement, as I am strongly opposed to anything of the kind. What I have done is this: I have endeavoured to impress upon the minds of the railway working classes the great good they may do by all uniting in one body for the mutual support of each other.

Enclosed is a circular which will also give you some idea of what we are doing, and if you will kindly insert this letter in your next impression, you will greatly oblige yours very respectfully,

Charles Basse St. Vincent,

Secretary to the Railway United Goods and Passenger Guards, Brakesmen, Shunters, Pointsmen, Yardsmen, Signalmen, Switchmen, Porters, Platelayers, &c., Amalgamated Benefit Society.

7, Willow Place, Park Street, Worcester.

[If our correspondent will refer to the article in No. 15, he will see that the assertion quoted was not made by us, but by the directors of the London, Brighton, and South Coast Railway.]

TO CORRESPONDENTS.

E. A.—The population of Stalcybridge in 1794 was 1,100, the number of houses being 200.

J. S. Oldham.—Your question should have been forwarded to the editor of a sporting or agricultural newspaper.

W. W.—We believe the work is published in a separate form, but do not know the price.

H. S.—The question is an important one, but the time has not arrived for discussing it.

A Compositor.—Your letter contains much that is deserving of consideration, but your suggestions have, in a great measure, been anticipated by many of our freehold land and building societies.

Lancashire.—The Factory Acts Extension Act (27 and 28 Vict., c. 48). This Act introduces for the first time the principle of the restriction of labour into the hardware trades, and applies with additional special provisions the Factory Acts. The additional clauses provide that—"4th, Every factory is to be kept in a cleanly state, and be ventilated in such a manner as to render harmless so far as is practicable any gases, dust, or other impurities generated in the process of manufacture that may be injurious to health. Penalty, £3 to £10. 5th, That the occupier may make special rules, to be approved by one of Her Majesty's principal Secretaries of State, to compel his workmen to observe conditions for the required degree of cleanliness and ventilation, and to affix a penalty not exceeding £1." In 1860, Mr. Adderley and Sir Stafford Northcote introduced into the House of Commons a Bill to provide for the education of children employed in manufactures or other regular labour, but it was not proceeded with. Its chief provisions were, that no child should be employed in any kind of labour, for wages, under twelve, unless he could read and write. Any employer might be relieved of the penalty upon conviction, if he would give an undertaking that the child should attend school whilst in his employment for not less than twenty hours every month, until the child had attained the age of twelve.

Parkesine.—The article on *Moulds* in the treatise on Electrotyping, given in No. 19 of the Working Man, will supply you with the information you require. The "shell" will deliver easily if the gutta-percha be laid on a stone or piece of metal in a cold place. Merely tapping it will be sufficient.

Fred. Denison (?).—We cannot recommend dealers in the article in question. The cost of an apparatus varies from £5 to £50, according to size and quality.

M. W. Chorley.—The articles on Electrotyping will include the process of galvanising iron.

G. J. R.—Have nothing to do with the doctor or his machine.

Thomas Gardiner.—Stanley's "Treatise on Mathematical Instruments" costs 5s.; Baker's "Mensuration," 1s.

John Rayne.—1. Gilding metals will be treated in our articles on Electrotyping. 2. Taste is for the most part an intuitive faculty, which may be governed and directed by the principles of art. Instances of bad taste are always apparent to a cultivated mind, but this question of taste involves so many considerations, that it has never yet been treated in a satisfactory manner by any writer; they are all deficient in comprehensiveness. The other subject referred to in your letter was found impracticable in the carrying out.

Jane.—Tweezers are small elastic steel nippers, employed chiefly for pulling out superfluous hairs. They may be obtained of a cutler.

A Learner (Bradley).—The easiest and surest plan is to fill the boiler, and weigh the first pailful. Every gallon weighs ten pounds. It is then a question of simple multiplication only.

WHITSUN HOLIDAYS.

The Zoological Gardens, Regent's Park.—Admission SIXPENCE every DAY in WHITSUN WEEK, except Saturday.

ROYAL POLYTECHNIC.

Wonderful Illusions.—The Cherubs Floating in the Air and the Modern Delphic Oracle (J. H. Pepper and Mr. T. Tobin, Joint Inventors), at 3 and 8—Mr. and Mrs. Henri Drayton's Charming Musical and Pictorial Entertainment, illustrating the LADY of the LAKE, at 4 and 9—Prestidigitatorial Magic by Mr. J. Matthews at 7.30—Dugwar's Indian Feats at 2—Lectures by Mr. King and Mr. Stokes, at 12.30 and 1.30—Science, Poetry, Painting, and Music.—Open 12 to 5 and 7 to 10. Admission to the whole, 1s.

Madame Tussaud's Historical Gallery, Baker Street. Admission, 1s.; extra rooms, 6d. Open from 11 a.m. till 10 p.m.

CRYSTAL PALACE.

Whit-Monday and following days, the most unusual combination. Besides the Thousand and One Holiday Attractions—CHANG, the Chinese Giant; his Wife, the Rebel Dwarf, &c.; ETHARDO, the Wonder of the Age, in his Spiral Ascension Feats; Mr. Nelson Lee, with a variety of entertainments; Dykwynkyn's Winking Joey, &c. &c.

One Shilling; Children half-price.—"The most wonderful shilling's worth in the world."

METROPOLITAN AND GREAT WESTERN RAILWAYS.

Whitsuntide Holidays.—TRAINS every TWENTY MINUTES between the CITY and HAMMERSMITH for KEW, RICHMOND, &c. TRAINS every HALF HOUR between the CITY and KENSINGTON for CRYSTAL PALACE and WEST LONDON LINE STATIONS.

GREAT WESTERN RAILWAY.

Whitsuntide Holidays.—Ordinary RETURN TICKETS, issued on Friday, May 18, and following days, will be available until Saturday, May 26, inclusive.

The CHEAP RETURN TICKETS issued to WINDSOR, WEYMOUTH, and certain other Stations, on Saturday, the 19th, and Sunday, 20th May, will be available for return up to the evening of Tuesday, the 22nd May.

For further particulars of each train see hand-bills, which can be obtained at the Company's Offices and Stations.

J. GRIERSON, General Manager.

Paddington, May 7th.

GREAT NORTHERN RAILWAY.

Whitsuntide Holidays.—On SATURDAY, 19th May, CHEAP EXCURSION TRAINS will leave London (King's Cross Station).

Each train Returning on Wednesday, 23rd May.

Further particulars given in bills, which can be obtained at King's Cross, and other principal Stations; also at any of the Company's receiving offices in London.

Tickets may be obtained on Thursday, 17th, and Friday, 18th May, at King's Cross Station; and at the Bull and Mouth, Angel Street, St. Martin's-le-Grand; 32, Regent Circus; and 264, Holborn; also on the morning of the running of the trains, at King's Cross Station only.

SEYMOUR CLARKE, General Manager.

London, King's Cross Station, May, 1866.

GREAT EASTERN RAILWAY.

Whitsuntide Holidays.—FIRST and SECOND CLASS RETURN TICKETS issued on FRIDAY, May 18, and intervening days, will be available for the Return Journey on any day up to and including Saturday, May 26.

CHEAP EXCURSIONS.—On SATURDAY, 19th May, SPECIAL CHEAP EXCURSION TRAINS, will leave the Bishopsgate Station at 12.30 p.m. for Cambridge, Ely, Wisbeach, Lynn, Hunstanton, Wymondham, Norwich, Yarmouth, and Lowestoft, &c.

The Tickets will be available for the Return Journey by any train of corresponding class (except the Express) up to and including Saturday, 26th May.

A DAY AT THE SEA-SIDE.—On WHIT-MONDAY, 21st May, a SPECIAL EXCURSION TRAIN to HARWICH will leave the Bishopsgate Station at 8.30 a.m., returning from Harwich at 7 p.m.

On WHIT-MONDAY, and TUESDAY, SPECIAL EXCURSION TRAINS to BROXBOURNE and RYE HOUSE will run from the Bishopsgate Station, calling at Mile End and Stratford.

CHEAP EXCURSIONS to EPPING FOREST on WHIT-MONDAY, and TUESDAY, from Bishopsgate, Mile End, Fenchurch Street, and Stepney.

For full particulars see hand-bills and published time-books of the Company. By Order.

Superintendent's Office, London, May 1, 1866.

Working Men's Lord's-Day REST ASSOCIATION, 13, BEDFORD ROW, W.C.

Object:—To secure to the people their right to the rest of the Lord's-Day.

The ANNUAL MEETING of the Members and Friends will be held in the Large Room, Exeter Hall, on THURSDAY evening, the 17th of May, 1866. The Right Hon. Earl of Shaftesbury, K.G., has kindly consented to preside. The Hon. and Rev. B. W. Noel, Robert Baxter, Esq., Handel Cossham, Esq., Mr. Varley, Rev. W. Curling, Mr. S. Salmon, Mr. Kaye, and Mr. G. M. Murphy will (D.V.) address the meeting. Doors open at six; chair to be taken at seven o'clock.

Tickets may be obtained at the Office, 13, Bedford Row, W.C., by all Members and Friends.

All persons who desire that Sunday should be preserved as a day of holy rest, are invited to become Members of this Association. Annual subscription, 1s. and upwards.

CHARLES HILL, Sec. [2

The Operatives' House BUILDING COMPANY (LIMITED). Established to provide Improved Dwellings for the Working Classes.

Working Men's Societies are invited to communicate with the Secretary, at the Company's Office, 10, John Street, Adelphi, W.C., where Prospectuses may be had.

W. H. ROBINSON, Secretary. [15

Gathered from the Waters. For ages past there have been running from the various mines in Cornwall large streams of water. About the year 1857, it occurred to a miner to test one of the streams to see if it contained Copper: it was found very productive. Since that the works have been carried on successfully, and now 100 tons of Copper, or more, are gathered from the water every year. The works have undergone the examination of many experienced persons, and a Company has been formed to work the streams upon scientific principles. The Company seeks to acquire the right to work the whole of one large stream, and desires to secure some additional Capital for the purpose. The Company is formed upon the principle of Limited Liability. There is no risk whatever in carrying on the works, and the profit is known to be very large, and certain of making good Dividends for the Shareholders. The Shares are of £5 each, but only £1 is called—10s. on application, and 10s. on allotment. More than £3,600 is subscribed for privately, and early application should be made for the remaining Shares. Any one desiring a safe and profitable investment cannot do better than take Shares in this Company.

Fuller information can be obtained from the Secretary of the Copper Precipitating Company (Limited), Office, 8, Warnford Court, Throgmorton Street, London, E.C. [3

William Chambers, Heraldic Chaser and Embosser, 4, FOLEY STREET, PORTLAND PLACE, W.

Honourable Mention, Great Exhibition, 1851; *Honourable Mention*, 1853, *New York*.

General Life and Fire ASSURANCE COMPANY, 62, KING WILLIAM STREET, LONDON, E.C.

CAPITAL, ONE MILLION.

Established 1837.

Entire freedom of the assured from responsibility and the *mutual* liabilities of partnership.

A Reversionary Bonus, equivalent to from 30 to 60 per cent., according to the age of the assured, declared in 1863.

The Reserve Fund in hand is upwards of six times the amount of the annual life income.

THOMAS PRICE, Secretary.

The National Standard Life INSURANCE COMPANY (LIMITED). 22, MOORGATE STREET, E.C.

General Manager:

R. R. HUTCHINSON, F.R.G.S., F.A.S.L.

POLICIES ABSOLUTELY INDISPUTABLE AND INDEFEASIBLE.

Part of Claims paid on notification of death, and balance within one month after proof of death. No Extra Charge for Policy Stamps or Policies.

Agents Wanted. Apply to Chief Office.

Alliance Assurance Company. Head Office, 1, Bartholomew Lane, Bank.

Subscribed capital	£5,000,000
Paid-up capital	550,000
Invested funds, upwards of	1,500,000
Annual income, upwards of	270,000

Fire business at home and abroad.

The full benefit of the reduction of duty given to the insured. The sum of £1,000 on dwelling-house and furniture, formerly charged £2 5s., can be insured under the new arrangement for £1 10s.

New Life Prospectus, with variety of Tables.

Agents in almost every town of the United Kingdom.

F. A. ENGELBACH, Actuary. D. MACLAGAN, Secretary.

Notice.—The renewal receipts for the Christmas quarter are now in course of payment.

The Accidental and Marine INSURANCE CORPORATION (Limited), 7, Bank Buildings, Old Jewry, London. Insurance against General and Railway Accidents. Marine risks at current rates.

J. W. ORAM, Secretary.

The Liverpool and London AND GLOBE FIRE AND LIFE INSURANCE COMPANY.

Offices:—1, Dale Street, Liverpool; 20 and 21, Poultry, 7, Cornhill, and Charing Cross, London.

PROGRESS OF THE COMPANY SINCE 1850.

Year.	Fire Premiums.	Life Premiums.	Invested Funds.
1851	£54,305	£27,157	£502,824
1856	232,279	72,781	821,061
1861	360,130	135,974	1,311,905
1864	742,674	236,244	3,212,300

JOHN ATKINS, Resident Secretary, London.

Life claims are payable in thirty days after they are admitted.

Working Men's College.—BUILDING FUND.—Subscriptions are requested in order to allow the Proposed Buildings to be begun in the Spring. The College is self-supporting; but increase of numbers has made additional Rooms necessary. Estimated cost, £3,000. Already subscribed, £780, including £26 5s. from the PRINCE of WALES, and £278 from the Principal and Teachers. See fuller statements in current numbers of *Cornhill* and *Macmillan's Magazine*. Subscriptions received at the College, 45, Great Ormond Street; the London and County Bank, Oxford Street; and by the Treasurer, R. B. Litchfield, Esq., 4, Hare Court, Temple.

Baker and Baker's True UNCOLOURED TEAS are imported and sold Free from all Adulteration; they can, therefore, be relied on for Uniform Good Quality, Fine Flavour, and Lasting Strength. Sold by Chemists, Confectioners, &c., in most Towns. [16

Government of South Australia EMIGRATION DEPARTMENT.

FREE PASSAGES are granted to South Australia, in vessels chartered expressly by H.M. Emigration Commissioners, to PLOUGHMEN, farm servants, miners, masons, bricklayers, wheelwrights, blacksmiths, sawyers, carpenters, gardeners, grooms, collar and harness makers, country shoemakers, &c.

ALSO TO SINGLE FEMALE DOMESTIC SERVANTS.

Further particulars and forms of application may be obtained at the office of the Emigration Agent for the Government of South Australia, 5, Copthall Court, London, E.C. [17

CHEAPEST EMIGRATION TO AMERICA, £7.

New York, by Cunard AND NATIONAL STEAMERS, WEEKLY, £7, cabin, £15 15s.; Canada, £7, cabin, £15 15s.; New Orleans, £6 6s., cabin, £25. Sailing Ships to New York, £4.

R. MONTGOMERIE and CO., 5, Ingram Court, Fenchurch Street, E.C. [18

Economy in Kindling Fires.—Four Fires are lit by the PATENT FIREWOOD for One Penny, without trouble to servants. No paper required. Sold by Grocers and Oilmen.—Works, 18, Wharf Road, City Road, N. Packed for the country, 500 for 10s. [19

BROWN AND POLSON'S PATENT CORN FLOUR, Recommended for CHILDREN'S DIET. [20

E. Bourdon's Patent Gauges. GIFFARD'S INJECTOR, FOR FEEDING STEAM BOILERS. DIAMOND PAINT, FOR IRON AND WOOD WORK.

Particulars and Prices post free on application to

W. T. HENDRY AND CO., 73, QUEEN STREET, LONDON, E.C. [21

FURNITURE ON CREDIT.

Furniture can be had at 83 and 84, CHARLOTTE STREET, FITZROY SQUARE, W., and paid for weekly or monthly. The articles can be had away immediately. Apply personally, or write to E. THOMAS, 83, Charlotte Street, Fitzroy Square. [22

Arnold and Sons' Improved IMPERCEPTIBLE TRUSSES, Acknowledged to be the lightest and most comfortable wearing Truss yet invented. ELASTIC STOCKINGS, KNEE CAPS, &c., for Varicose Veins, Weakness, &c. Abdominal Belts, Railway Conveniences, Crutches, Artificial Legs, Hands, and Arms, and every description of Surgical Appliance manufactured by

ARNOLD AND SONS, 35 and 36, WEST SMITHFIELD, LONDON.

N.B.—Directions for Measurement forwarded upon application by letter. [23

Superior Trusses, Elastic STOCKINGS, &c., Manufactured by W. H. BAILEY & SON, 418, OXFORD STREET.

Trusses from 5s. each; Stockings from 4s. 6d. [24

The Original Chlorodyne, Invented by R. FREEMAN, Pharmaceutist, is allowed to be one of the greatest discoveries of the present century. It immediately relieves and cures Coughs, Colds, Consumption, Influenza, Bronchitis, Asthma, Whooping Cough, Cramp, Spasms, Gout, Diarrhœa, Dysentery, &c.

EARL RUSSELL communicated to the Royal College of Physicians and to Mr. Freeman that he had received information from Manilla that the only remedy of any use in Cholera was Chlorodyne.—*Lancet*, Dec. 31st, 1864. See *Times*, Nov. 14th, 1865.

Freeman's Original Chlorodyne.—The *Medical Times*, Jan. 13th, 1866, states—"It has an immense sale amongst the public, and is prescribed by scores of orthodox medical practitioners, and, of course, it would not be thus singularly popular did it not supply a want and fill a place."

Freeman's Original Chlorodyne engraved on the Government stamp outside every bottle. Sold by the Inventor and Manufacturer, R. FREEMAN, 70, Kennington Park Road, London, S., and most Chemists. In bottles, ¼ oz., 1s. 1½d.; 1½ oz., 2s. 9d.; 10 oz., 11s.; 20 oz., 20s.

Caution! Beware of spurious, deceptive, and dangerous imitations. Ask for Freeman's Original Chlorodyne, and see that you have none other. [25

Hall's "Lung Restorer" gives instant relief in Coughs, Asthma, Hoarseness, Sore Throat, &c. Mr. R. Brooke, Mirfield, near Leeds, writes, after suffering over ten years with an asthmatic cough, "Three 1s. 1½d. bottles cured me." Prepared by THOMAS HALL, Chemist, 6, Commercial Street (City side Great Eastern Terminus), London, and sold by all Chemists, in bottles, at 1s. 1½d., 2s. 9d., &c. [26

Albert Veterinary College (Limited), Queen's Road, Bayswater. Professor John Gamjee, Principal. Subscribers' fee, £2 2s.; Tradesman's, £1 1s. per annum.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

Morrison's Archimedian HEM-FOLDER for the Sewing Machine and the Finger. Manufactured solely by

JOSEPH GILLOTT,

Metallic Pen Maker to the Queen, Victoria Works, Graham Street, Birmingham.—Drawings and particulars forwarded on application. [4

EASY MODE OF PAYMENT.

Every Description of General DRAPERY, TAILORING, AND OUTFITTING, At Moderate Prices.

TERMS: One Shilling in the Pound per Week.
H. J. SEARLE, 125, Old Kent Road. [5

BY ROYAL COMMAND.

Metallic Pen Maker to the QUEEN.
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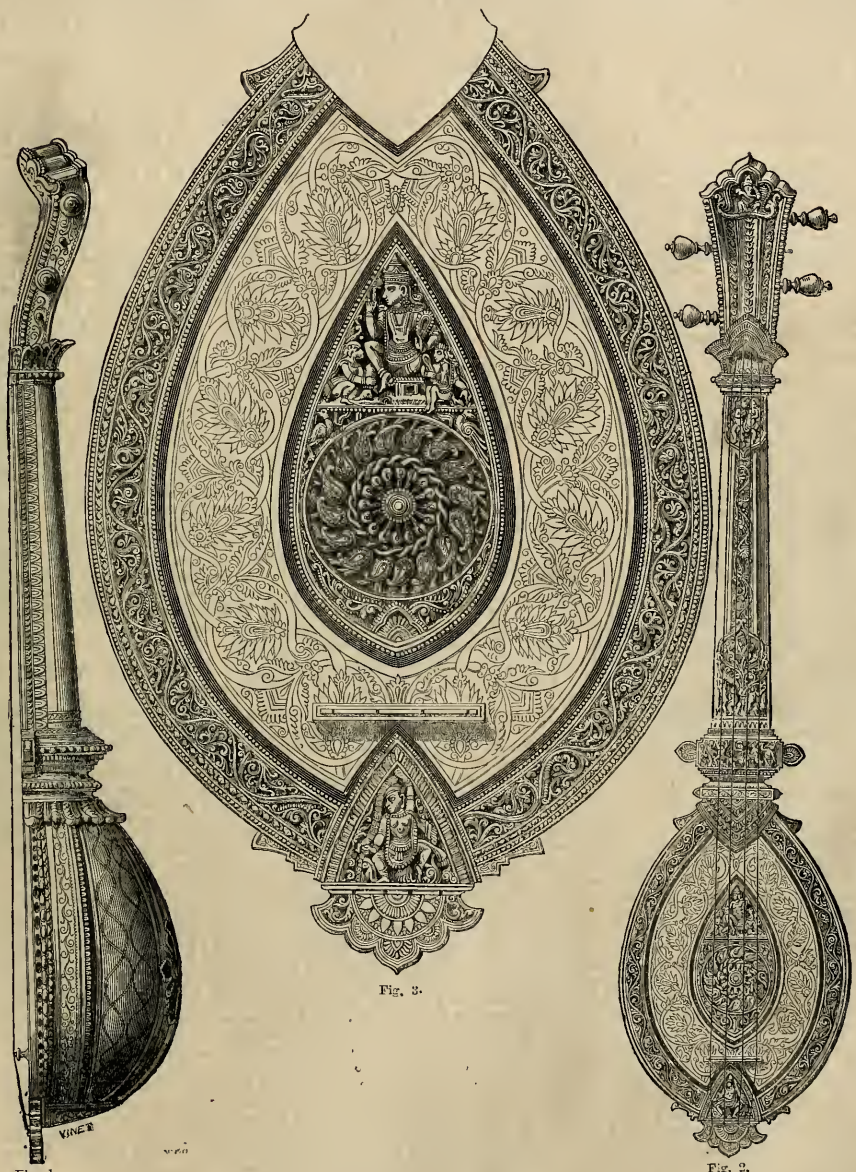


Fig. 1. Fig. 3. Fig. 2.

INDIAN BINA, OR GUITAR.

Indian Ornamentation.

A BINA, OR GUITAR.

THIS musical instrument is formed of ivory—it measures thirty-six inches in length. It is not a very ancient work; it is supposed that the artisan who constructed it was living at the close of the eighteenth century. However that may be, it is a very admirable specimen of Indian art.

Suppose a person of intelligence and taste, who had never seen any representation of the architecture and sculptures of Hindustan, had this guitar placed before him. At first, he would experience a feeling of surprise; but, after a careful examination, he would not, upon reflection, hesitate to say that the country in which so ingenious and skilful an art-workman could be found to execute such a work must be great in the arts, and that, doubtless, it has preserved traditions worthy of being studied by nations most advanced in civilisation. This opinion has long been held by travellers and scholars, who have examined the Indian sculptures of the caves of Ellora and

Elephanta, the ruins of Barolli, the temples of Adjmer and Komulmair, the tadj and tomb of Sha-Djaham, the mosques of Agra and Delhi, the palaces at Benares and Bidjapur, the ruins of Bhouvanesouara, the triumphal arch of Basnagar, the column at Chitor, and a hundred other examples of an original and powerful art. Between the *bina* represented in our engraving and any of the celebrated edifices of Bhuddist or Mussulman India, there is a closer connection than may appear at first sight; and, however widely different the proportions, it is not impossible to judge of the one by that of the others. It is remarked that the microscopic vignettes which Prudhon, an eminent French painter, made in his youth for merchants' bill-heads, when examined by a strong magnifying-glass, exhibit all the effect and excellences of the best engravings. Imagine the details of this Indian guitar enlarged in like manner, and we might believe that we had before us the elements of capitals, friezes, and other architectural details, such as would have been required if he who designed and carved this little musical instrument had not been also competent to construct a temple.

It appears to us that it will be useful to direct attention to this ornamentation, which exhibits such fine and delicate taste. We have arrived at an epoch in art, less systematic than formerly, which does not confine itself within circles traced by the ancient schools of art. To multiply the varied models of the excellent productions of all nations is, we think, to render a real service to industry itself, which tends, now-a-days, with fresh ardour, to abandon the vulgar or insignificant forms that prevailed at the beginning of the present century.

DESCRIPTION OF THE ENGRAVINGS.

Fig. 1. *The Sonorous Body of the Instrument.*—This is of an ovoid and inflated form. This portion of the instrument is divided into three perpendicular zones, bounded by two circles of carved ivory.

Fig. 2. *Top of the Instrument.*—This is of ivory, the pattern being in perforated work.

Fig. 3. *Details of the Top, or Sounding-board.*—Rama seated on his throne, his wife, Sita, on his right hand, and Hanouman, the god of apes, on his left. Beneath are sixteen birds entwined by their necks, whose heads and beaks unite and form a *rose* in the centre. This medallion, in the form of a heart, occupies the centre of the sounding-board, and is surrounded by two ornaments of similar form. The first, encircling the medallion, and painted on wood, is composed of a large garland of yellow flowers, interlaced, upon a red ground; the second, entirely of carved ivory, represents a running design. Below the pegs, in perforated work, Krischna is seen dancing, holding a garland of flowers in his hands.

Unknown Faces.

There is a splendid collection of these now to be seen in London, at the National Portrait Exhibition, lately opened at South Kensington, in what was formerly the refreshment rooms of the Great International Exhibition. We have spoken of these portraits before. Earl Derby was the author of this collection. It was his design, and his influence has enabled it to be carried out. There are upwards of 1,000 portraits gathered together for the instruction of the few and the gratification of the many.

We have heard these portraits called "Historical Faces." They are not all that, for the authenticity of the majority is undecided. Some of them are, undoubtedly, historical; nearly all of them are unknown to the public. The portraits date back to the days when Jan de Mabeuse, Hans Holbein, Antonio More, and other equally remote artists, first painted in England. English portraiture began with them. Since their time, their works have been buried on the walls of private mansions, court houses, and castles, utterly unknown and inaccessible to the public. Many of the persons here represented have long been household names in this country. For two or three centuries they have been conspicuous in our histories, but few had the means of conceiving how they dressed and looked. No engraving, where such have been diffused abroad, could equal the life-like presentment the painter renders who saw them. The colour, the stature, in most cases, are given in the portrait on canvas and panel; and the visitor to the exhibition sees the actual lineaments, as those who owned them looked upon them and approved them when transferred by the painter's art hundreds of years ago.

The beauty or defect of these paintings, the rise and growth of this great art of portraiture, the styles of the different masters, the authenticity of their works, the pedigrees of the different panels—all these are matters of art, and concern the connoisseur. The general public will know little of these nice points, and will go to gaze on these unknown faces, to see what manner of people filled the world, and were the memorable actors in our national history.

Many will be filled with surprise at what they will behold. None will be insensible to the wondrous art with which a great number are painted. They will admire without knowing why, and, nevertheless, admire rightly. A work of genius makes itself known in ways of its own, and conquers the attention of the learned and unlearned alike. But surprise will be felt at the unexpected personal appearance of many of the portraits. Others, again, answer entirely popular expectation. Philip II., of Spain, is disagreeable enough, but yet has not the thin-lipped, dyspeptic, cruel mouth of his wife, Queen Mary, which is in every portrait. Those who know the history of Queen Elizabeth and her times, will not be surprised to see her painted with a nude Venus sitting on a bench before her in her court; but few would, in these days, expect that such a picture would have been attempted or permitted by her. No one, however, can wonder that Wickliffe gave trouble in his day, who looks on his sharp, penetrating, polemical face. John of Gaunt answers exactly to his iron name. Chaucer's portrait has been preserved for more than three hundred years at Llanshaw Court, Gloucester. The profile of the Earl of Douglas is well worth looking at. Warwick, the "King maker," has a plebeian, but resolute air. Sir William Butts and Lady Butts, painted by Hans Holbein, are the two finest specimens of his pencil in the whole exhibition. There are two Will Somers, the jester of Henry VIII.—the one looking through bars has a face to make a prison merry; the other would make a bridal party feel like a funeral procession, if they met him. There are three Blakes—one a sour-looking Dutch Van Tromp, one a Spanish poet, in appearance elegant and fiery, the other a massive Antinous. It is impossible they can all be the portrait of our brave old admiral. There never was a neck of any being, except an ostrich or a giraffe, so long as Sir Thomas Wyatt's. Burghley looks heavy, rather than wise. It is said, "No man ever was so wise as Burghley looked." Sir John Harrington wears the graceful, romantic air of the new world maker he was. Lord Arundel, of Wardour, has a head full of force and nature, such as Vandyck knew so well how to paint. Sir William Drummond, of Hawthornden, has a sonnet in his face. The head of Villiers, Duke of Buckingham, painted after his assassination by Felton, is remarkable for largeness, dignity, and intellect. The owner of such a face ought to have led a better life. Colonel Hacker, who had the custody of Charles I., looks a man into whose hands no one would wish to get. There are two Prynnes, the brave penman—the one bilious, and conscious of the loss of his ears; the other as he deserved to look, when he had written his enemies. There are two Andrew Marvels—one full of refinement and privation; the other a sleek knave, who looks as though he wanted to be bribed. Inigo Jones looks as distinguished as his works. The famous Harvey resembles Carlyle; and Cowley, Professor Kingsley. Simon the Medallist has the head of a Napier, the nose and gaze of an eagle. Major-General Disbrowe, whom Cromwell made Chancellor of Ireland, has the face of a girl, though he had the spring and fury of a tiger. George Fox is handsome as a country milkmaid, and as ruddy, and sentimental to idiocy. You wonder how a spirit so untamable, constant, and brave, dwelt in a form so sweet and rapturous. The statuesque beauty of Jane Shore, authentic or unauthentic, is there. Sir Peter Lely's Nell Gwynn, cold and chaste; the handsome and intrepid Charlotte de la Tremouille, Countess of Derby, and many examples of loveliness and lasciviousness are represented. On these alluring canvases are faces full of dignity and intellect, of grace and strength, of honourable age and nobler character. English life, heroism, and thought, of three centuries ago, look down upon the visitor from these walls.

Chief and multitudinous of all the works of the great painters present are those of Hans Holbein, the dashing, daring, indefatigable portraitist, of whom Henry VIII., his great patron, truly said, when an outraged nobleman demanded his life—"Out of seven peasants I could make seven lords; but out of seven lords I could not make one Holbein." He is the greatest master, as he was the father, of our portrait painters. His sure hand never failed him. There is mastery and confidence in all his touches. He painted living people, and they live still on his canvas. His queens on the way to the block, and the king who sent them there; the nobleman or the jester; the philosopher and the fool; their expression, their complexion, their attire, are all faithfully shown. Nothing escaped him, and he bestowed on every detail care and skill.

Other painters, whose works are included in this exhibition, are deserving, and will be sure to receive, study and appreciation; but were the works of Holbein alone there, the public could not fail to experience admiration and delight from the sight of so many examples of his now brought together. What a great writer has said of the Academy of Athens may be applied to an exhibition containing the great works of Holbein: "Many are the beauties of the place—the groves and the statues, and the temple, and the stream of the Cephissus flowing by; but the attention of the student is just now arrested by one object: it is the very presence of Plato. He does not hear a word that he says; he does not care to hear; he asks neither for discourse nor disputation; what he sees is a whole, complete in itself, not to be increased by additions, and greater than anything else. It will be a point in the history of his life, a stay for his mind to rest on. A Spaniard is said to have travelled to Italy, simply to see Livy; he had his fill of gazing, and then went back again home. Had our young stranger got nothing by his voyage but the sight of Plato; had he entered no lecture-room to hear, no gymnasium to converse, he had got some measure of education, and something to tell of to his grandchildren." The designer of this exhibition may have had some such thought in his mind when he proposed to open the concealed world of portraits to the English public; and certainly the works of Holbein alone would go far to realise such an expectation.

THE POETRY OF THE FUTURE.

The poetry of the coming age must come from the working classes. In the upper ranks, poetry, so far at least as it represents their life, has long been worn out, sickly, and sentimental. Its manhood is effete. Feudal aristocracy, with its associations, the castle and the tournament, has passed away. Its last healthy tones came from the harp of Scott. Byron sang its funeral dirge. But tenderness, and heroism, and endurance still want their voice, and it must come from the classes whose observation is at first hand, and who speak fresh from Nature's heart. What has poetry to do with the working classes? Men of work! we want our poetry from you—from men who will dare to live a brave and true life; not like poor Burns, who was fevered with flattery, manful as he was, and dazzled by the vulgar splendours of the life of the great, which he despised and still longed for; but rather like Ebenezer Elliot, author of the "Corn Law Rhymes." Our soldier ancestors told you the significance of high devotion and loyalty which lay beneath the smoke of battle-fields. Now rise and tell us the living meaning there may be in the smoke of manufactories, and the heroism of perseverance, and the poetry of invention, and the patience of uncomplaining resignation.—*The Rev. F. W. Robertson.*

Increase of Coal Traffic on Railways.—Seventeen years ago the entire coal traffic on the Midland Railway did not exceed a quarter of a million tons a year: now it is at the rate of six and a half millions of tons.

Steam Omnibuses.—Steam omnibuses are, it is said, to be established in Paris. The company propose to run from the Champs de Mars to the Bastile, making six halts. The first is to be at the Champs Elysées, the second at the Madeleine, the third near the new opera on the Boulevard des Capucines, the fourth near the theatre of the Gymnase, the fifth at the Porte St. Martin, and the sixth at the Château d'Eau. The omnibuses drawn by horses take an hour and twenty minutes to perform the distance; the steam company undertake to accomplish it in forty-five minutes, including stoppages.

The Moral and Social Aspects of the Temperance Movement.

Morality, in its most comprehensive extent, includes the performance of all our duties; and these have respect to the Creator, to ourselves, and to other beings, especially those of our own species. It is usual, however, to distinguish between religion (duties to God) and morals; not because religion can be practically separated from other branches of morality, but because the duties men owe to themselves and others may be inculcated, and in a measure performed, without immediate regard to the authority and favour of the Most High. Morality, in this more limited sense, involves, as to oneself, (1) the duty of self-acquaintance, (2) the duty of self-restraint, and (3) the duty of self-improvement. As to others, morality involves (1) the duty of abstinence from injuries, (2) the duty of showing kindness, (3) the duty of mutual protection and assistance; all of which may be summed up in the golden rule of "doing to others as we wish them to do to us." All avoidable ignorance is forbidden by the first and third duties of personal morality, and all vice by the second. But vice is a general name for indulgence of the animal nature at the expense of the mind and heart. Some indulgences are immoral in themselves; but gratifications commonly become immoral by their excess. Physical propensities, when they grow so strong as to impel to action irrespective of consequences, and of the moral sense, are vicious "lusts of the flesh;" and, in proportion as they are obeyed, they degrade their subject to a bestial condition.

Over against this animalism, or intemperance, stands continence, or temperance; and all moral codes, whether philosophical or religious, have magnified the radical and supreme value of self-restraint, both as a means of bodily health and mental discipline, and as a basis for usefulness in life. Hence by some ancient sages temperance was considered, not so much a single virtue, as a preservative of all the virtues. The bearing of these remarks on the Temperance Movement of modern times will be perceived, when we place alongside of them the indisputable facts—

First, that intoxicating liquors, in whatever age or country they have been used, have generated a form of animalism distinct from every other—one peculiarly fascinating and peculiarly degrading; and,

Secondly, that their effect upon animalism in general has been of a singularly exciting and aggravating character.

The phenomena of intoxication are not possible without the use of intoxicating liquors—a fact which is overlooked by those who confound *this* intemperance with other sensualities. These phenomena are of very great variety, but all indicate the action of special *toxicum*, or poison, from the faintest flush to the wildest delirium. Popularly speaking, "intoxication" designates only the most striking symptoms produced by the *toxicum;* but scientifically, a relationship between all the symptoms must be acknowledged. Hence the love of drink is not confined to habitual drunkards, and the characteristic sensualism of the bottle may be carried to a lamentable extent without one act of ordinary drunkenness ever being committed.

Not less remarkably do alcoholic liquors operate on the whole animal nature, by educing and inflaming its worst propensities. Concurrently, if not in consequence, the moral perceptions and powers are weakened; and the will (the capacity of free action) is obviously affected, while self-confidence is rendered morbid and extravagant. This is why the vice of drinking is the mother or nurse of almost all vices, and why it is the unequalled generator and fomenter of crimes of violence. Crimes against property are also largely due to it, from the loss of means and character it produces, so making men desperate and ripe for evil.

Admitting all this, however—and it can scarcely be denied by the thoughtful inquirer—the Temperance Movement has been opposed as an extreme method of counteracting the sensuality caused or stimulated by intoxicating liquors. The moderate use of such beverages, it is held, would prevent the moral and social evils complained of, and is the best exemplification of that temperance of which Nature largely consists. It is even held by some who take this view that abstinence is distinct from temperance, as an appetite or desire for drink cannot be restrained where it is not permitted to exist. To this reasoning it is replied, that the moderation in drinking thus extolled can never become universal, or even general, while strong liquors are used as beverages, considering (1) their inherent tendency to stimulate and not to satisfy desire, and (2) the tendency of mankind to seek physical enjoyment at the expense of their highest interests. It is also replied that this *beau-ideal* moderation is indefinable, and that what is deemed by the drinker a moderate use of intoxicants will seldom be found free from some injurious effects. Further, it is answered that the true principle of temperance is self-restraint *from* all sensualising agents, and that restraint in their use, though very commendable, is an inferior measure of the temperance required, and is always attended with a degree of danger which is morally unquestionable, unless incurred in the performance of a clear moral obligation.

The Temperance advocate also lays great stress, and very advisedly so, upon the class of moral duties having regard to others; and he endeavours to show that total abstinence is superior to the most vigilant moderation, in the safe example it offers and the encouragement it presents to the victims of drink to practise that self-restraint of total abstinence which, for them, is universally allowed to be essential. Further, the duties of mutual protection and benefit are said to be illustrated by the influence of the total abstainer in discharging his responsibilities to the family and the State. Over and above all reasoning and theory, the supporters of the Temperance Movement point to its actual results in the reformation of drunkards; the preservation of the sober; the better training of the young; the greater industry, good order, and respectability of its members; and the transparent improvement of every kind made evident in the moral and social state of large numbers of persons, whenever brought under its direct control. To drinking, it is said, the vice of prostitution owes most of its magnitude and virulence; by drinking, all other public and private debaucheries are sustained in their ghastly luxuriance; from drinking, as from a fountain, flow the crimes that make society blind, and cover it with shame. It is therefore inferred that if drinking were abolished—if by general consent or fashion the habit were to become obsolete—all the evils thus provoked would cease, and with their removal so much immorality and suffering would disappear, while all extant appliances for the elevation of the world would operate with augmented force, and achieve a more assured success.

THE PARIS EXHIBITION OF 1867.

This exhibition bids fair to be the most extensive yet erected in the whole world. The talk is already of the wonders to be exhibited in the park and gardens, which outshine by far all those beheld within the palace. The various habitations of mankind in the different quarters of the globe are to be constructed therein. A missionary's hut, such as rises on the shores of the African rivers, is to be sent by England. The imperial tent belonging to the gala service of the Emperor of Morocco, and the tent inhabited by the Bey of Tunis when on a journey, will be spread side by side with a merchant's house from Teheran, and an opium factory from the same place. Egypt sends the palace of her Viceroy and an artificial hatching-oven. From Turkey comes a mosque, a Maronite dwelling, and a sarcophagus. Italy has already conveyed the collection of the tools and apparatus used in boring the tunnel beneath Mont Cenis. The Pontifical Government has bespoken a superb tent, beneath which will be exhibited all the antiquities discovered of late years in Rome and its environs. In the Japanese garden will be seen a native kiosk, a bamboo hut, and the hunting-lodge of Prince Stayemy. As to China, the patient and enterprising, she will despatch a Chinese coffee-shop and bazaars, and in the middle of the Chinese garden will rise to the clouds one of those porcelain towers in whose existence nobody believes save those who have beheld them. The kingdom of Siam will be represented by a Siamese temple, and a dwelling-house belonging to one of the nineteen *eldest* sons of the king. All these dwellings will be surrounded with the plants and vegetation peculiar to the clime whence they have been brought. Some idea of procuring, as far as possible, specimens of the animal life belonging to the same region has been suggested; but difficulties arise in the way of feeding and keeping them within bounds, which threaten to interfere with the project. The greater portion of the park, as well as the building, will of course be consecrated to France. In the midst of an immense garden, containing living specimens of the natural productions of the country, will be dug an extensive lake, to be fed by an artificial river, whose waters will escape by a cascade falling from rocks of considerable height. In the middle of the lake will rise a lighthouse, containing a beacon, which, by its electric light, will render the night as pleasant as the day through the horizon of Paris during the whole time of the exhibition.

*The Language of the Workshop.**

There is often a misconception with regard to the two words *carbuncle* and *cabochon*, and sometimes one is taken for the other, whereas the confusion arises from the mistaking a stone for the manner of cutting it. The primary word, *caboche*, from the French, means a round-headed nail, a rounded lump, a head, a nob; and, consequently, a stone cut *cabochon* is one smoothed round and polished without being regularly cut. In this shape we obtain the garnets from India, and which we call *carbuncles*. It is evident that both words mean much the same thing, only that the word *carbuncle* has come to be used for garnets cut *cabochon*, while *cabochon* means only the manner of cutting any precious stone with a smooth, rounded surface. The English lapidaries use the word "tallow-drop" to describe the manner of cutting cabochon, but the roundness given to the stone is not the same in both cases, the former word indicating a greater flatness on the top. In reality, we go back to the rudest and earliest method of stone-cutting in the carbuncle or cabochon cut stone, which could have been only the gem as plucked from the matrix, and polished on its best surface; but science has so modified the method to advantage, that it is now the most effective in developing the beauties of some stones.

The word *lemel* (sometimes written *lemaille*) has the same meaning in most European languages—viz., the filings and miscellaneous accumulations in the process of working. In German and English it has no elementary sense, and is, no doubt, derived from the French *mêler*, to mix, *lemèle*, or *le-mèlé*, being a mixture. The Germans have a word which subdivides this mixture very neatly, and which may be rendered into English as *goldish*—that is to say, it describes the *lemel* of the diamond jeweller, in which silver becomes mixed with gold in so large a proportion as to render the whole unfit for future working without being parted and refined. This is not *lemel* in the usual sense of the word; that is to say, it cannot be reduced in the skittle-pot so as to be fit for immediate use; and as a name is really required to distinguish it, *goldish* perfectly answers the purpose.

It is instructive to observe the difference of terms in which masters and men—to use the old-fashioned words—are spoken of or addressed at different times, and in different places. In England the word *master* has long given way to other titles less indicative of superiority, as *employer;* and although the honourable designation of *workman* still holds its own—as it probably ever will, on account of its implied proficiency in practical knowledge—the expression by which an inferiority is suggested between the one who buys labour and the one who sells it are becoming gradually discarded. Even *journeyman* is out of date, and *operative* thrown aside. Many workmen would think themselves degraded by being called a "hand," and the term a "man," in its restricted sense of a mechanical servant, is not generally relished. Distinctive titles are indeed avoided, and the workman takes his place under the general phrase of the "employed," while the employer, ceasing to be a "master," is dubbed, half in jest and half in earnest, the "guv'nor." So the spirit of independence asserts itself.

In Germany there is a distinction between North and South. The North calls the employer the *principal*, which requires no translation, the South the *herr*, lord and master. The workman, once the *knecht* or hind, became in process of time the *geselle* or journeyman, and is now the *gehülfe*, the assistant. Sometimes there is a kind of compromise between the words *herr* and *principal;* and the employer, in a sort of sly earnestness, becomes the *alter*, the old one. The French jeweller designates his master his *patron*, and the foreman his *chef d'atelier;* while the more demo-

* Concluded from page 314.

cratic American delights in individualising his employer as the "boss." In some French trades, however, the spirit of antagonism makes itself evident in the bitter term bestowed upon the *patron*; and the tailors, with others, designate him as the *grife*, or Old Scratch—an expression more significant than polite.

From masters, coming to apprentices, it is not surprising that the primary idea expressed in the words used with regard to the latter is identical in most languages, and indicative of a state of pupilage. The English word apprentice does not at first sight appear to express so much, and for its real signification we must turn to the French verb *apprendre*, to learn. From this comes *apprenti*, a learner, and so our own word apprentice. The Germans use the word which, perhaps, we should have adopted, and which, indeed, we have adopted in almost every other case. From *lehrnen*, to learn, comes *lehrlinge*, a learner, an apprentice. To be "*in der Lehre*" is with them to be in that honourable state of dependence—in apprenticeship.

*The Swedish Calculating Machine.**

In our previous article, we gave a sketch of the history of calculating machines in general, and of the Swedish invention in particular. We shall now attempt to describe the mechanism by which the Messrs. Scheutz have accomplished their purpose.

Like its two English predecessors, the Swedish machine is strictly a Difference Engine. It is composed of three distinct parts: (1) the calculating apparatus, consisting of the vertical spindles and rows of figure-wheels observable in the entire front of our last week's illustration; (2) the printing apparatus, which lies at the top and back part of the machine, and consists of the horizontal spindles with their corresponding toothed wheels, pulleys, racks, and type-wheels, visible at the top of the left hand of the illustration; and (3) the index, or enumerator, which lies quite behind out of view, and indicates the number of results completed.

There are five horizontal rows of calculating-wheels: on the first row appears the result of every separate calculation, and it is, therefore, the only part placed in direct communication with the printing mechanism; the second row corresponds with the first order of differences; and the third, fourth, and fifth rows with the second, third, and fourth orders of differences. The calculating-wheels are silver-coated rings or hollow cylinders, each about two inches in diameter and about three-quarters of an inch high, and they run in bearings on a shelf, which admits of their being turned with ease either by hand or by the movements of the machine. Round the outer surface of these wheels the figures from 0 to 9 are engraved at regular intervals, and each wheel is supported on its shelf in such a way as that half its surface is above and half below the shelf; on the upper half the figures are engraved, and the lower half is divided into teeth, corresponding in number with the figures above. To "feed" the machine—if we may use the expression—it is requisite that the wheels be so set by hand as that the figures composing the differences and first term of the series to be calculated are all ranged "eyes front," in drill order, on the centre of each wheel. Thus, referring to the example which we gave in our previous article of the mode of calculating a table of cubes, we should "set" the wheels by turning them by hand until the following figures showed in the centre front of the wheels on their respective rows:—

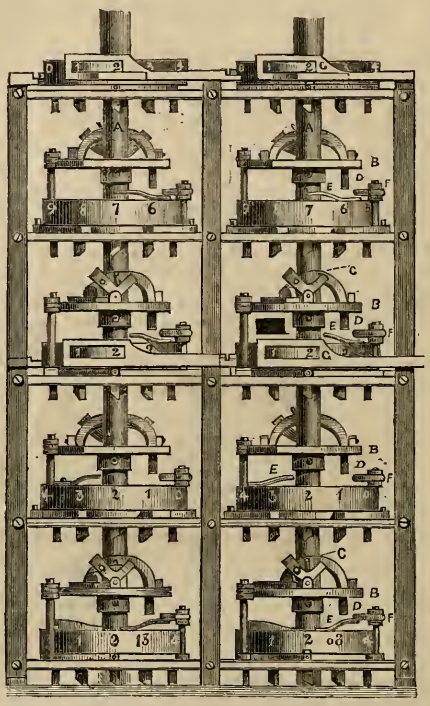
First row	1	= First term of Series.
Second row	7	$= \delta^1$
Third row	12	$= \delta^2$
Fourth row	6	$= \delta^3$
Fifth row	0	$= \delta^4$

These numbers would be set by beginning on the eighth wheel of each row,—the printing apparatus only extending to eight figures—and setting from right to left when more than one figure is required; all the other wheels would be set to zero.

Now, assuming the figures given above to be set for the calculation of a table of cubes, each resulting cube would be obtained by two opposite motions of the mechanism, or, as it is technically called, by a complete "stroke," which is divided into two equal parts. The first "half-stroke" prints the number on the first row, and adds the numbers on the third row to those on the second row, and the numbers on the fifth row to those on the fourth row, simultaneously: this is half the operation; the second "half-stroke" adds the new numbers on the fourth row to those on the third row, and simultaneously the new numbers on the second row to those on the first row, which completes the operation by giving the second cube, to be printed at the succeeding "half-stroke."

Let us now endeavour to explain how the machine executes its work.

By an adaptation of the old "mangle-wheel" principle, the handle is turned continuously in one direction, whilst a backward and forward movement of the mechanism is the result. Working on the same axis with the "mangle-wheel" (marked A in last week's illustration), is a toothed segment, which is periodically brought into action by a stud projecting from the diameter of the mangle-wheel, and which, as it rotates, bears against the segment, and carries it on until the reverse action of the mangle-wheel takes the stud off its bearing and brings it round to the other side of the segment. This segment acts on a rack which is geared to pinions affixed to the tops of each of the fifteen vertical spindles, and causes them to make a complete revolution, first in one direction and then in another. These spindles (marked A in the accompanying section) pass down through the open diameters of each of the rows of calculating-wheels, but without touching them; so that, if there were no other provision, the revolution of the spindles would have no effect whatever upon the wheels. But midway between each wheel and the one immediately underneath it, there is a small stage, B, attached to the spindle carrying a finger, C, working on a trap, from which is projected downwards a lever, D, reaching nearly to the top of the wheel below; so that as the spindle goes round it carries this sort of fishing apparatus, or grapnel, with it. Then from the top of the wheel below there projects upwards a small catch, E, which is balanced at its centre, and as the spindle revolves the grapnel meets with an obstruction in the catch, the effect of which contact is to raise the finger on the trap, and cause it to take hold of a notch in the under part of the wheel above, and carry that wheel round until the grapnel has passed over the obstruction, when the trap falls and the finger drops from its hold on the wheel above. It will be noticed that, with regard to the bottom row of wheels, no provision is made such as we have just described, and, therefore, whatever number is set on those wheels remains unchanged throughout the operation. In the accompanying section, the bottom wheels show 0 as the set number, and as nothing is to be added from that row to the row above, the little catch is brought under a fixed arm, F, which depresses the catch below the course of the grapnel; and thus, as the value of the bottom row is zero, the row next above it will remain unaltered until a fresh setting is made. In this way the powers of the machine can be curtailed by reducing the numbers on either one, two, or three of the rows of wheels to zero; and if every wheel in the machine were set to zero, the spindles would revolve *ad infinitum* without changing the position of the wheels.



SECTION OF CALCULATING MACHINE.

There is yet another most ingenious contrivance connected with the calculating apparatus, which we must try to convey some notion of. Supposing the machine has to add, say, a row of eights and a row of fours together, some means are wanted for carrying the tens as one would do in ordinary practice; thus—

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 88888
 44444
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133332
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This contingency is thus provided for:—Each figure-wheel has a small stud placed on its engraved surface in such a position as that, when the result of an addition exceeds unity, the revolution of the wheel causes the stud to strike against one end of a bent horizontal lever, G, of which the other end is placed close in front of the next preceding wheel, and throws it out beyond its rank. Then, by means of an endless chain geared to the mangle-wheel, an upright post works in a groove up and down in front of the figure-wheels. This moving post (marked B in last week's illustration)—the "traveller," as it is called—is fitted with arms working on pivots, and these arms grope along the line of march for any obstructing levers which may have been thrown forward during the calculation as an indication that a carriage needs to be made. Whenever the arm of the "traveller" comes in contact with a projected lever, the arm is raised, so as to bring its latch against a tooth of the figure-wheel in front of which it is passing, and carry that wheel round one place. This process of carrying is independent, and comes into force between the intervals of calculation. The printing apparatus is at the back part of the machine, and is brought into play by means of weights and pulleys acting upon a series of horizontal spindles connected in the front with the calculating-wheels, and at the back with a set of racks geared to a corresponding set of type-wheels, E. Whilst the calculation is being performed, all the type-racks are kept fixed by a bar, F; but as soon as the line of figures represented on the top row of calculating-wheels is ready for printing, the bar is withdrawn, and the racks are left to the action of their weights, which is regulated by the motion of a snail, D, similar to that of a common clock. The snail in this instance drops down on to a notched spiral cam, C, attached to the top row of calculating-wheels, and the position of the type-racks, therefore, depends upon the corresponding positions of the snail and the spiral cam. When the type-racks are thus regulated, the type-wheels will have ranged themselves in proper order for stamping the result of the calculation upon a plastic surface fixed in the printing-rack, which, by a simple contrivance, is passed along gradually underneath the type, and by the action of an eccentric is raised up to receive the impression, and then pushed forward so as to leave a clear space for the next line of figures. The material used for receiving the impression of the steel dies is *papier maché*, in slips of about eight inches long by two inches broad, and of moderate thickness, the surface being rubbed over with

* Concluded from page 306.

blacklead, so as to give greater facility in casting the stereotype plates.

Table of Cubes of the Natural Numbers 1 to 15, calculated and stereotyped by the Swedish Calculating Machine.

Natural Numbers.	Cubes.
1	1
2	8
3	27
4	64
5	125
6	216
7	343
8	512
9	729
10	1000
11	1331
12	1728
13	2197
14	2744
15	3375

We give a specimen of the work of the machine, which was calculated and stereotyped on the *papier maché* in our presence, and from the matrix which was given us we have had the actual figures (which are in the significant characters of the machine) stereotyped for the gratification of our readers, who will thus possess a tangible proof of the realisation of one of the most ingenious ideas which ever issued from the brain of man.

We have thus endeavoured—very imperfectly, we are assured—to describe some of the salient features of the Swedish Calculating Machine. We do not pretend to have written such an account as would satisfy scientific men; but have, rather, sought to make our remarks chiefly intelligible to our own constituents, many of whom are daily employed amidst the wonders of machinery in our great factories, workshops, and mills. On their behalf we are much indebted to the Registrar-General for giving us the opportunity of making them acquainted with one of the most novel and beautiful pieces of mechanism we have ever seen. Regarded simply as a piece of work in metal, it reflects the very highest credit upon Messrs. Donkin, the well-known London engineers, in whose establishment the machine was made. The machine consists of more than 4,000 separate pieces, and weighs 10 cwt.

*Lessons in Mechanics.**

BY THE REV. PROFESSOR HAUGHTON, M.D., F.R.S., FELLOW OF TRINITY COLLEGE, DUBLIN.

If we estimate the work done by horses and other animals as weights lifted through a height, we obtain the following results:—

WORK DONE BY ANIMALS.

	HOURS OF LABOUR.	WORK DONE.
1. Horse yoked to wagon (walking)	8	5845 ft.-tns
2. Horse yoked to carriage (trotting)	4½	5052 ,,
3. Horse yoked to whim (walking)	8	3719 ,,
4. Horse employed at pumps (Portora)	8	3425 ,,
5. Horse yoked to whim (trotting)	4½	3131 ,,
6. Ox yoked to a whim	8	3340 ,,
7. Mule yoked to a whim	8	2505 ,,
8. Ass yoked to a whim	8	1039 ,,
9. Steam horse of English Engineers	8	7071 ,,
10. Steam horse of French Engineers	8	6959 ,,

The steam horse was a unit of force invented by Mr. Watt, from observations made on the work done by brewers' horses employed in turning machinery by means of a horse whim.

The steam horse of Watt is equivalent to 33,000 lbs. lifted through one foot in one minute, and is always employed in calculating the horse power of machines. It gives a result of work done daily by the horse, that must be regarded as a maximum, although well-fed and well-treated horses can be made to produce this large amount of daily work. For example, in the "haulage" of materials on a tramway, the strain of the traces when the wagons are properly loaded should be 150 lbs., and it is found that at this description of work, a good horse can labour at the rate of two and a-half miles per hour, for eight hours daily. This gives us for the work done, 150 lbs. lifted through twenty miles, which, when converted into foot-tons, gives—

$$\text{Work done per day by a horse in railway haulage} \left\} \frac{150 \times 20 \times 5{,}280}{2{,}240} = 7{,}071 \text{ ft.-tons.} \right.$$

This result is identical with the work attributed to the steam horse of Watt.

If we take the mean of the steam horse, the horse yoked to a wagon, and to a whim, we find the daily work done to be 5,545 ft.-tons. In doing this work, the horse is obliged to walk about twenty miles, and of course has to carry his own weight in addition; assuming the average weight at 1,250 lbs., and the coefficient of traction at 1-25th, this is equivalent to—

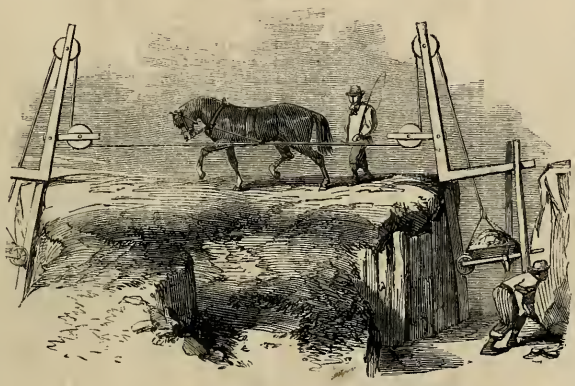
$$\text{Work done by horse in walking 20 miles} \left\} \frac{1{,}250 \times 20 \times 5{,}280}{25 \times 2{,}240} = 2{,}356 \text{ ft.-tons.} \right.$$

The total work done by an average horse in one day is therefore—

Useful work	5,545 ft.-tons.
Fatigue work	2,356 ,,
Total	7,901 ft.-tons

We have already found (see second table, page 293) that a man is capable, on an average, of performing 320 ft.-tons in one day, which is only $\frac{1}{25}$ part of the work done by a horse. The price of a man and horse per day is only double that of the man alone, and as the horse can do twenty-five times the work of the man, there is a great economy in the employment of animals in every description of labour to which they are suited.

The accompanying illustration shows a contrivance called a "horse run," invented by Mr. Matthews, and for which he obtained an honorary gold medal from the Society of Arts. It is intended to assist shovellers in raising earth from one level of a railway cutting to another. The weights of the wheelbarrows counterpoise each other, their wheels run upon highly-inclined planks, and the handles are guided by uprights. The weight is lifted by the horse, and on reaching the higher level the loaded barrow is ready for the navvy, whose duty it is to wheel it away and empty it. The remainder of the diagram explains itself.



THE HORSE RUN.

* Continued from page 293.

*Window Plants and their Culture.**

For window decoration during the early spring months, there are no plants so well adapted as bulbs of various kinds and Chinese primroses. I have already given the necessary culture of the latter, and I shall now describe the suitable treatment of the different bulbs grown in pots and glasses.

Foremost comes the hyacinth, which for its beauty of form and colour, pleasant perfume, and the ease with which it may be grown, is a great favourite. The most suitable method of growing this lovely flower is in pots; and there are pots manufactured specially for them, which are deeper in proportion to their width than usual. A five-inch pot will be quite large enough for one bulb, and a seven or eight-inch pot will do for three bulbs planted together. Hyacinths may be planted from the time the bulbs arrive (early in September) until December and January. The soil should be rich, and have a liberal mixture of coarse sand. The drainage must be good. Fill in the prepared soil, pressing it slightly down; place the bulb so that its top is on a level with the rim of the pot, and then, putting in some more earth, press it firmly round the neck of the bulb, which will prevent it from rising out of its place when the roots begin to grow. After the bulbs are planted, put them in a dark place for a fortnight or three weeks before exposing them to the light. This treatment will cause the roots to grow before the leaves. After the bulb begins to grow, never let the soil get quite dry, and turn the pot round in the window daily, so that it may not grow all to one side.

In glasses the culture of the hyacinth is very simple. Use rain-water instead of spring. Put a piece or two of charcoal in the bottom of the glass, and as long as the water remains sweet forbear changing it. As soon as the roots begin to grow, take away a little of the water, so that it may be half an inch from the base of the bulb. As to the choice of bulbs, price, &c., the trade lists which are published every autumn by the London and provincial seedsmen will furnish every particular necessary.

Dwarf tulips, the Duc Van Thol in various colours, the double Tournesol, and some others, make a very gay addition to window-plants, when planted three or five of each in a five or six-inch pot. They also require a rich, sandy soil, and plenty of light and air, so that the colours may be bright, and the stalks short and firm.

Many varieties of narcissus—the double white Roman and the bulbocodium, or hoop-petticoat—grow nicely in pots. They require just the same treatment as the above. Then crocuses, snowdrops, anemones, ranunculus, scillas, and a number of other bulbous and tuberous rooted plants, are all very well suited for the enlivenment of the window when other flowers are scarce. All require pretty much the same treatment. But it is essential in planting these roots to have the soil sandy and rich, and to keep them in darkness for some time after they are put down, so that the roots may have some time to grow.

A large, flat basket, or a china dish, filled with damp sand, looks beautiful when planted with hyacinths in the middle, round these the dwarf tulips, and a border round the whole of snowdrops, crocuses, and the pretty blue scillas. The surface of the sand must be covered with moss, and every week or ten days the whole quietly immersed in a pan of water, and let drain for a few minutes before being restored to its place. It will be necessary to place a few lumps of charcoal in the bottom of the sand. Such an arrangement as this will give a succession of gay and beautiful flowers for weeks together. The separate bulbs in pots will be much benefited by an occasional cleaning of their leaves with a soft brush and

* Concluded from page 315.

lukewarm water. If the stems of the hyacinths should be too short, a paper funnel placed over them will be found useful to draw them up; but the fault with beginners is generally the other way, and the stems become long and weak, requiring support. The way to avoid this is by giving plenty of air and light, and keeping the plants near the glass, so that they need not stretch to get to the light. Keep the bright sunlight off when in blossom, and they will last in full beauty for many days.

The foregoing directions will, I hope, enable many persons successfully to grow plants, who have hitherto been deterred by fears of failure; the aim of the writer in these articles having been to give the most essential directions in the simplest language, more than to introduce any novelty in treatment. Of course, there are many other plants which will grow in windows which have not been mentioned; but if the plants whose treatment has been here described are successfully grown by the aid of these directions, any other plant that is not unsuitable on account of its delicacy or size, may be tried with a fair prospect of success.

EFFECTS OF POSTURE ON RESPIRATION.

Dr. Edward Smith, one of the sanitary commissioners of the Privy Council, says:—In a long series of experiments which I have made with a view to determine the effect of posture and exertion over the quantity of air inspired in any period, and consequently over the movements of the chest, it was shown that only in the lying posture was it less than the sitting posture; and that the difference between the amount in the latter and that when walking at the moderate rate of three miles per hour was no less than three times of that in the sitting posture. The following table gives the result of this series in many modes of exertion, all compared with the amount of the respiration in the lying posture as the standard:—

The effect in the lying posture being	1·00
That of the sitting posture is	1·18
Reading aloud and singing, each	1·26
The standing posture	1·33
Railway travelling in the 1st class	1·40
Ditto 2nd class	1·5
Ditto upon the engine at 20 to 30 miles per hour	1·52
Ditto upon the engine at 50 to 60 miles per hour	1·55
Ditto 3rd class	1·58
Ditto upon the engine (average of all speeds)	1·58
Ditto upon the engine at 40 to 50 miles	1·61
Ditto upon the engine at 30 to 40 miles	1·64
Walking in the sea	1·65
Ditto on land at one mile per hour	1·9

All the above have an influence exceeding, but not the double of that of, the lying posture.

Riding on horseback at the walking pace	2·2
Walking at two miles per hour	2·76

These have been two to three times the influence of the lying posture.

Riding on horseback at the cantering pace	3·16
Walking at three miles per hour	3·0
Ditto ditto ditto	3·22
Rowing	3·33
Descending steps at 640 yards per hour	3·43
Walking at three miles per hour and carrying 34 lb.	3·5
Walking at three miles per hour and carrying 62 lb.	3·84

These have an influence from three to four times greater than that of the lying posture.

Riding on horseback at the trotting pace	4·05
Swimming	4·33
Ascending steps at 640 yards per hour	4·4
Walking at three miles per hour and carrying 118 lb.	4·75
Walking at four miles per hour	5·0

These have an influence from four to five times that of the lying posture.

Lastly.—The tread-wheel	5·5
Running at six miles per hour	7·9

Valuable Halfpence.—A curious kind of industry has lately sprung up in France. Two-sous pieces, struck in 1852, are now being purchased, principally by silversmiths, for five sous each. It appears that, in 1852, one of the workmen at the Mint let fall by accident into the caldron filled with copper an ingot of gold. Fearing that he would be discharged if the accident became known, he concealed it, and the two-sous pieces were struck off. It was only after the ingot was missed that the matter came out. The secret was kept for some time, but it is now well known to the public, and everybody is on the look-out for the coins in question.

Processes of the Arts and Manufactures.

LEATHER MANUFACTURE.

TANNING.—HARD AND SOFT LEATHERS—VARIOUS PROCESSES OF TANNING—TAWING—CURRYING—THEORY OF TANNING—EMPLOYMENT OF THE RESIDUES OF THE MANUFACTURE OF LEATHER.

The leather manufacture is a very extensive and important branch of British industry, only inferior in value and extent to cotton, wool, and iron, if it be not equal, or even superior, to the latter. Its extent is not so apparent as that of the other manufactures named, for the reason that, while they are centralised in a limited area, the manufacture of leather is carried on in most large towns throughout the kingdom. It is now impossible to arrive at correct data as to the annual value of the leather products of this country at the present day; but it may fairly be estimated at £25,000,000, employing over 300,000 persons, whose wages may be set down at £12,000,000 annually. The employment of the skins of mammiferous animals for clothing, coverings of the feet, and a host of domestic and manufacturing purposes, has been common in all ages and among all nations; but, nevertheless, it must be admitted that modern industry alone has succeeded in giving to these products the special qualities for which they are so justly prized.

The preservation and preparation of skins rests, generally, upon two distinct branches of industry—distinct as to process, similar as to aim. The first is applied exclusively to coarse leather (hides of the calf, ox, and horse): its object is the special action which *tan* or oak-bark exercises upon the skins—this is the art of *tanning*. The second, applicable only to small skins (those of the sheep, goat, young calf, &c.), substitutes for the slow processes of tanning the more rapid and combined action of certain chemical compounds—such as alum, sea-salt, &c. This is *tawing*.

This distinction is not, however, always preserved. In some countries the *tawers* treat small skins with warm solutions of tan; but, in fact, the theory of the different processes is analogous, and whether *tannin* or a mineral salt be employed, the aim proposed is still the same. In either case we seek, with the organic matter of albumenoid nature which constitutes the skin of mammiferous animals, to form an imputrescible, insoluble, inelastic compound—the new properties and indestructibility of which, by numerous agents, are valuable in a host of applications.

As a necessary consequence of the operations of the tanner, or the tawer, is a third manufacture, that of *currying*; for the skins, after the manipulations intended to convert them into imputrescible products, have not yet acquired the physical qualities which constitute their chief excellence. The *currier* undertakes to give to the skins, by *oiling* or *greasing*, *fulling*, *airing*, and *dyeing*, if desired, the suppleness, grain, and colour required in the various purposes to which skins and leather are applied.

Manufacture of Sole-Leather.—The hides or skins of the ox, cow, and horse are supplied to the tanner from the slaughter-houses of this country in a fresh state, soon after the animals are killed. Large quantities are also imported from foreign countries, particularly from La Plata, in South America, where thousands of fine oxen are slaughtered every year for the sake of their hides, horns, and hoofs—the flesh having hitherto been wasted for want of a ready and effectual method of preserving it for exportation to Europe. The hides of these animals are either dried in the sun—as the *charqui*, or jerked beef, is also—or they are salted, and in this state of preservation shipped to the United States of America and Europe.

The tanning materials are the astringent barks of certain trees—more especially the oak—which abound in the chemical principle known as *tannin*, or tannic acid. Sumach is also rich in tannin, but, on account of its high price, is employed for morocco leather only. Whichever bark is employed, it is reduced in bark-mills to a coarse powder, with such precautions as to prevent the dust given off from entering the lungs of the attendant workmen, to whom it is very injurious.

The qualities desired in a good sole-leather are, that it be compact, flexible, and but little absorbent.

To attain these results, the hide or skin, when received by the tanner from the butcher, is freed from all useless portions adhering to it, such as the fat, horns, and hoofs, and washed, to remove the blood and dirt.

The dried hides received from Central and South America are, in the first place, soaked in water, in order to bring them as nearly as possible to the same state of suppleness and distension that fresh or green hides possess.

Salted hides are also put to soak, in order to free them from the salt they contain, which, if allowed to remain, would interfere with the tanning process. Salted hides become soft much quicker than dried hides, as their suppleness is preserved by the salt. This operation is performed in water that has been previously employed for soaking skins in, for it is found that such water, charged with animal matters, acts more quickly and efficaciously than clear water. Most of the tanneries of Paris are situated on the river Bièvre; the skins, fastened to the banks by ropes, are left to soak in this stream, and they become softened very quickly, because the drains from all the tanneries and other factories carry into the Bièvre a large quantity of matters in a state of decomposition.

Upon removal from the water the skins are beaten with an iron bar, in order to remove the creases, and to "break the nerve" of the skin, and render it more supple and easier penetrated by water. The skins are next piled one upon another in large stone vats, where they are submitted during several days, according to their nature, to the action of slaked lime mixed with water into a cream. The lime exercises a peculiar effect upon the skin, rendering the removal of the hair quite easy, but is, in some respects, injurious.

The removal of the hair may be effected by other methods—viz., by a spontaneous fermentation of the skin, by heat artificially applied, and by sour tan liquor.

The method by *natural heat* is that usually adopted with fresh skins. This heat is generated spontaneously when the skins are piled in heaps. The piles must be frequently examined, so as to ascertain the time at which the hair comes off easily when pulled, but not too easily. If the heating be not checked in time—that is to say, if the fermentation be continued too long—the skin is decomposed, and the leather made of it will be found deficient in weight and quality.

At one time, this heating process was effected by the heat of a dung-heap, and worked very well; but there was a difficulty in examining the skins, and ascertaining how far the fermentation had proceeded. A stove-heat obtained by burning spent tan, in which the skins were placed on wooden horses, has been employed; but that process has been improved upon by the steam process invented by M. Delbut, in 1838. The steam is introduced under a false bottom, and penetrates into the chamber by holes made in the upper part. The condensed water flows out at the bottom by suitable apertures.

The fermentation necessary to cause the removal of the hair from the skins may be produced by sour tan-liquor. This method requires a series of vats—from seven to ten—about 5 ft. 8 in. in diameter, and 3 ft. 8 in. in depth. From seven to eight skins, at the most, are put into each vat. The process is conducted methodically—that is, the first vat contains the weakest solution, the second a stronger solution, the last having the strongest of all.

The skins are first placed in the weakest solution, so as to become perfectly soaked. They are lifted out (*handled*) twice every day, and laid on the edge of the vat to drain. At the expiration of an hour they are returned to the same vat, and next day passed to the second vat, where the solution is a degree stronger. This change of vats is renewed until the hair becomes loosened, which in summer time takes place in eight or nine days, and during winter in from ten to twelve days. The temperature causes the skins to swell, and opens the epidermis sufficiently to allow the hair to come off readily.

When the skins are brought to the point at which the hair can be easily removed, they are submitted to the *unhairing* process, which is performed by means of a round knife with two handles, upon a convex wooden bench called a *beam*. The unhairing must be performed upon a *couch* or *layer*; that is, skins must be laid, folded double, upon the beam, so as to form an elastic bottom, upon which the skin to be unhaired is placed.

The implement employed possesses the advantage over the knife in not damaging the skin when it is handled by an unskilful workman. Every care is taken to prevent dirt coming between the knife and the skin, else the bloom would be damaged. Still, when the *unhairing* is difficult, and the hair will not come off, the skin is dusted with sifted ashes, or very fine sand, which facilitates the operation.

The skins are next returned to the vats and washed in clean water, and then worked again on the beam with a circular knife, with which all the flesh and other impurities and useless portions still adhering to the skin are removed. The skins are again returned to the vats, and also washed and worked on the beam with short blunt knives, for the purpose of removing all the lime and water the skin may have imbibed. This labour is very fatiguing: it compels the workman to stoop over the beam, and to spend his days in a very damp place. The quantity of water required has prevented warm water from being employed in these manipulations.

After soaking a few hours, the skins are put into a vat of spent tan, or ooze, in which they swell a little, and next day the bloom is worked with a round knife. If any hairs remain attached to the skin they are removed by hand with a pair of pincers.

The skins being again rinsed, they are put into vats of sour tan-liquor, in order to swell, or *raise* them by acid fermentation. The sour liquor is made with tan from pits in which the skins of a preceding operation have been immersed, and upon which water is poured and left to become acid. The weakest liquor is taken first. There are six or eight vats of liquor, each increasing in strength, then a *new* vat, which contains fresh acid liquor, to which some tanners add a certain quantity of sulphuric acid, the mixture being well stirred.

The first day that the skins are put into the *new* vat they are lifted out twice, and left to drain an hour. On the second day they are lifted out only once. The liquor is carefully stirred before the skins are replaced in it. On the third day the skins are passed into another *new* bath, also filled with fresh acidulated liquor, like the preceding. This is the *new swelling*, or *raising*. The skins are lifted again in the evening, left to drain for an hour, and then returned to the liquor. This operation is repeated during two days more, then the skins are left to repose from four to six days: they are now ready to be tanned. The processes of tanning will next be described.

FLOWERS FOR PERFUMES.

FLOWERS for perfumery purposes are principally grown in the neighbourhood of Grasse, Cannes, and Nice, three towns situated in the South of France, close to each other. The manufacture of perfumery materials forms one of the principal branches of industry in that district, giving employment to upwards of 10,000 people, including many women and children, for whom the work of culling flowers and picking off the stocks is particularly suitable. These flowers are generally grown by small farmers, who contract with the perfumers for their crop, with the exception of orange flowers, which are always sold on the market. The prices flowers realise vary a good deal, according to the abundance of the crop. They average as follows:—Roses, from 4d. to 8d. per lb.; orange flowers, 6d. to 10d.; jasmines, 1s. to 1s. 6d.; violets, 1s. 6d. to 2s. 6d.; tuberose, 1s. 3d. to 2s.; cassie, 2s. to 3s.; jonquils, 1s. to 1s. 6d.

The following are approximate quantities and values of flowers consumed for pecuniary purposes in that locality alone:—Orange flowers, 2,000,000 lb., worth about £50,000; roses, 600,000 lb., £15,000; jasmines, 150,000 lb., £8,000; violets, 60,000 lb., £6,000; cassie, 80,000 lb., £6,000; tuberose, 40,000 lb., £3,000.

The plants from which essential oils are usually made are not cultivated, but grow wild on the mountains; for, as Byron says:—

> "'Tis not the plant upreared in cloth
> Which beauty shows, and sheds perfume;
> The flowers which yield the most of both,
> In Nature's wild luxuriance bloom."

The principal plants from which essential oils are derived are—lavender (*Lavandula vera*), spike (*Lavandula spica*), peppermint (*Mentha piperita*), rosemary (*Rosmarinus officinalis*), thyme (*Thymus vulgaris*), wild thyme (*Thymus serpyllum*), and marjoram (*Origanum majorana*), which are distilled on the spot by means of portable stills. An essential oil is also extracted from geranium (*Pelargonium odoratissimum*), which, from its strong *rosy* flavour, is much prized by perfumers, and the bitter orange leaves yield a powerful essence named *Petit-grain*, which is used in eau-de-Cologne.—*Rimmel on "The Commercial Uses of Flowers."*

Facts and Memoranda.

MORE than 1,500,000 human beings derive their sole support from the culture and manufacture of the fibres spun by the silkworm.

CALIFORNIAN ORES.—Ores are now sent from California and Nevada to Swansea, in Wales, to be smelted. 25 per cent. more silver is extracted from Nevada silver ores at Swansea than would have been extracted in America.

WOOD PAPER.—A fine white paper can be made out of wood. A company has been established at Philadelphia which converts daily twenty tons of wood pulp into a soft white paper. A number of literary and scientific men visited these works recently, and saw a poplar tree on a hill side cut down, and witnessed its conversion into clear, fine paper, all within the space of five hours!

NEW FEATURE IN MUSEUMS.—The Free Museum, Peel Park, Manchester, is to have a permanent gallery of photographic portraits, uniform in style and size, "to be taken from life in the first instance, and printed by an important process, invented and patented by Mr. Swan, of Newcastle, which is claimed to have made photography as permanent and indelible as a printed engraving."

COAL IN WALES.—A provincial paper states that the Welsh coal-field has been tapped at various parts by mines, and there can be no doubt that a layer of first-class steam coal exists there 20 square miles in superficial area, with an average thickness of 30 feet. Every cubic yard of this vast field contains a ton of coals. About 150 million tons have been extracted, and the annual extract at the present time is about eight million tons. At this rate the coal-field will last upwards of 13,000 years. The north of England coal-field, which has been worked for nearly 2,000 years, and shows no signs of exhaustion, is not to be compared with the Welsh field in point of magnitude. The latter has not been known more than thirty years.

WAGES IN LANCASHIRE.—Mr. Baker, inspector of factories, in his last report, remarks that the increase in the wages of cotton workers between the years 1854 and 1860 was greater than at any other period, owing to improvements in machinery enabling the hands to turn out more work. He gives a table, showing the rate of wages in 1850, last year, and three intermediate years.

	1850.		1853.		1854.		1860.		1865.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Spinners (men)	20	0	22	0	20	0	27	0	30	0
Carders (men)	20	0	22	0	20	0	28	0	25 to 34	
Grinders (men)	14	0	15	4	14	0	17	0	16	0
Rovers (women)	12	0	13	2	12	0	13	6	15	0
Throstle spinners (girls)	8	9	9	8	8	9	11	9	—	
Weavers	10	0	11	0	10	0	12	0	8	6
Self-actg. minders	—		—		—		22	0	30	0

NITRO-GLYCERINE.—The inventor of the practical adaptation of nitro-glycerine to blasting purposes, Alfred B. Nobel, appeared as a witness in the action at New York against the shippers of the package which exploded at San Francisco. He testified that the preparation will not explode by setting fire to it, by friction, or by concussion, but that it requires 360 degrees of heat in a confined space to explode it. He has been engaged in the manufacture in Germany more than a year. Mr. Nobel accounts for the accident at San Francisco by presuming that the oil leaked into the sawdust packing, and was thus heated to the requisite degree. He refuses to believe that the catastrophe at Aspinwall was caused by nitro-glycerine, saying that had a single case of that substance exploded the ship's bottom would have been blown out, and there would have been no second explosion. The inventor also stated that he was engaged in investigating the effect of the oil when mixed with sawdust, believing that thus a much more dangerous compound was obtained than nitro-glycerine itself.

WORKING MEN IN TOWNS.—It has been said that there is one great advantage which working men obtain by working in large towns, in preference to the rural districts, whether it be in large commercial houses or in great manufacturing establishments. They are directly able to earn much more money; but even this is not the principal advantage which they gain, for they are almost invariably so circumstanced as to get an insight into the modes of acquiring wealth pursued by their employers, and thus acquire an education of immense value. It would be easy to adduce instances without number illustrative of this fact. Of Mr. Rennie it is said that his manufactory "was indeed a school, in which some of the best mechanics of the day received a thorough training in machine work, and many of his workmen, like himself, raised themselves to the rank of employers of skilled labour." The same remark is true of very many other establishments. It is said of the workmen employed by George Stephenson that they acquired a skill and precision in the manufacture of the several parts of the engines made by him, which not only enriched the master, but that his workshops were a school or college, in which the locomotive workmen of the kingdom were trained, and many of the most celebrated engineers of Europe, America, and India acquired their best practical knowledge in his employment

FAMILY LIFE IN THE WORKMAN'S HOME.

RECENT writers have spoken eloquently of the power of the family as a moral regenerator. M. Jules Simon regards it as the bow of promise, which spans for the workman the dark clouds which have gathered over his horizon. M. de Gasparin last year filled two volumes with his own living, penetrating thoughts, as to what the family is, and what it is intended to accomplish. It is an agency for human happiness which dates from Eden itself; when God found for man his help-meet, he constituted the first human family.

But family life has its laws, which cannot be transgressed with impunity. The different lot assigned to the man and the woman, from the very beginning, may be regarded as among the most essential of those laws. The man is to labour in his vocation as a bread-winner—the woman is to labour in her home; his life is to be outward and social—hers private and domestic. We cannot improve upon God's order; we may not violate it: in ordinary circumstances, *family life* flourishes only under these conditions.

It is not the daily toil in the sweat of his brow which threatens the workman's domestic peace; it is that we have taken the key-stone from his arch by tempting his wife away from her proper and natural sphere of domestic labour. Work! who would be without it?—it is the healthy exercise of our faculties, our courage, our perseverance, our enterprise! Let those answer who, having no fixed occupation, have tried to substitute for work a continued round of exciting pleasure. Are they happier than the honest working man, who comes back after his twelve or thirteen hours' labour with his basket of tools slung over his shoulder, and looks in at his own door to see the faces of wife and children brighten up at the sight of his smile and the sound of his voice? Every man, rich or poor, has, or ought to have, his work; the loving intercommunion of members of a family is far more likely to be endangered by idleness than by labour.

And assuredly, in pointing out that the house-mother's sphere of labour lies at home, we have not claimed for her a life of ease! If one woman, during the years in which a young family is increasing around her, contrives, through all her days and hours of weakness and incapacity, to nurse her children, bring them up in good habits, cook, mend, and wash for her husband and the whole family, and keep her house or room in anything like neatness and order—whatever else that woman is, she is not an *idle* woman.—*From "Lending a Hand."*

FRESH AIR!

OR, VICTORIA PARK PRESERVED.

GOOD people all, both great and small,
A bumper, everywhere,
To Parliament fill that threw out the Bill
For robbing poor men of fresh air.
For I own I likes fresh air,
I loves a breath of fresh air;
And dim their eyes whenever they tries
To rob a poor man of fresh air.

Some people thinks gasometer stinks,
Is respiration fair;
But I'll always contend, to my life's end,
That there's nothing to breathe like fresh air.
For I own, &c.

The health of men cyanogen
And hydrogen impair.
Whenever my chest with sitch is opprest,
I wish it was all fresh air.
For I own, &c.

Sulphureous fumes the lungs consumes,
And burns the trees all bare;
But I always find both body and mind
The better for good fresh air.
For I own, &c.

O! 'Tis my delight on a holiday bright
In Victoria Park to fare;
Where Moll and I, with little 'uns by,
Resorts for a breath of fresh air.
For I own, &c.

Moll read the news we was to lose
The good of our walking there;
I could smoke my pipe but not eat my tripe
If the gas-works had poisoned the air.
For I own, &c.

Of all things thirst isn't quite the worst;
There's one that's as hard to bear:
Which is want of breath, being stifled to death,
Like them as is robbed of fresh air.
For I own, &c.

Let companies shape their projects to scraps
Up wealth, and dividends share.
But dim their eyes whenever they tries
To rob a poor man of fresh air.
For I own, &c.—*Punch.*

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; John Stuart Mill, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; and the Rev. J. Begg, D.D.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

MAY 26, 1866.

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Lambeth and Mr. Doulton.

As the working class increase in knowledge, and aspire to political power, they increase in the liability of responsibility, if we may use so unusual a phrase. The public will expect them to show that they possess political judgment, and look forward to their exercising it. A case in which they may display it has arisen in the affairs of the borough of Lambeth. Mr. Doulton, one of the representatives, has taken a course on the Franchise Bill which has been made the subject of free and somewhat indiscriminating comment. When a public man takes an unexpected line of action he is generally condemned in a ready-made way. The ready-made way may be right in this particular instance, but it should not be adopted without examination. Independence of view is not common, and needs to be encouraged; therefore, when any case of it occurs, public opinion should rather incline towards it, and it should not be hastily subjected to censure. The exercise of independent judgment may be, as we have said, erroneous; but it should not receive censure until it is found to deserve it. Even rightly founded reproof should be arrived at deliberately and pronounced gravely. The fickleness of the multitude is proverbial. Nothing gives more weight to any class, or commands for it more respect, than to find that it reverses its decisions slowly, and is generous and patient in its judgments. Representatives who believe their constituents to be fickle study their caprices instead of their interests, and appeal to their humours rather than to their understanding. We should like to see a popular constituency, like that of Lambeth, act in a manner to raise the character of constituencies in which working men have undoubted influence.

Mr. Doulton takes great interest in preserving the commons for the people—we do not mean the House of Commons, but the commons, sometimes called the Parks of the People. To other social questions he is a friend. We do not say that this alone atones for any great dereliction of political principle; but, if a public servant has some widely-admitted good qualities, that is a reason for well considering whether any fault alleged against him, is such as to warrant the course of superseding him.

Lord Grosvenor's amendment, for which Mr. Doulton voted, and which is the reason of the censure expressed by many upon him, was an amendment calculated to put off and, perhaps, destroy the Franchise Bill. Here arises a question of political morality, to which very little attention is paid. Ought a member of Parliament to vote for a proposition because it is right in itself, or because of the consequences involved in it? If a man votes against a right thing because consequences he disapproves may result, he does evil that good may come. This has always been considered a wrong rule in morals. Again, if he always votes for the right principle, regardless of consequences, he may do great mischief in trying to do great good. He may be an obstructive, and, with the best intention, saddle upon the country sudden and serious evils. He may throw out a good Government and bring in a bad one; he may throw out a Cabinet inclined to peace and bring in one inclined to war. Now, on what principle should a member act? If Mr. Doulton should look only to consequences, then he was wrong in his Grosvenor vote. If he should look only to the intrinsic meaning of the amendment, he might be right. To look to consequences only is expediency, to look to truth only seems the best. There is most independence in this course, but there is also uncertainty of results. Mr. Doulton should explain on which principle he acts. His constituents, before they condemn him, should make up their minds on which principle they should wish him to act, and give him notice of the view they take of his duty.

Apart from consequences following from Lord Grosvenor's amendment, it might be wrong in itself. It may be held that the Franchise Bill was a distinct question; that it was an entire question—a sufficient question—and stood alone; and ought to be treated alone; and that to connect with it another and very different question, was to confuse as well as delay the Franchise Bill. Here Mr. Doulton would be held to have been guilty of an error of judgment by those who took the views last described. For this he might be condemned, but without being dismissed. A meeting of his constituents might consider this question, and agree to mark his act as an error. This would be judicial, it would be fair, it would be a warning, it would be moderate, and honourable to their judgment. For one error a man should hardly be dismissed. This would be a measure so hard that only an infallible member, or one who took care to do nothing, could hope to escape.

A Member of Parliament may have been a long-tried and consistent Reformer like Sir William Hutt. To dismiss such a servant because of one mistake, would have a bad effect on the morality of Members of Parliament. It would not be treating them like gentlemen, but like apprentices. Conservatives have not been better than working men in this. One of their leading journals sarcastically wrote of the Member for Gateshead—

> "Content is found in lowly cell;
> Freedom of mind in prison shut;
> And independence loves to dwell
> (Let Gateshead witness) in a Hutt."

This was treating Sir William Hutt as one who had no right to defer to the wishes of his constituents, on a great question affecting their own interests and hopes, and on which they were the best judges. On national and international questions, and such as affect other parts of the country remote from a constituency, a Member of Parliament, knowing or having access to all the facts of the case, is often a better judge than his constituents. But on questions of personal right, credit, and liberty, the constituent is a better judge than—certainly as good a judge as—the member.

On such a question as that raised in Lambeth, we think Mr. Doulton owed his constituents a grave and explicit explanation of the course he thought it right to take. A member may disappoint his constituents on a vital question, if he gives serious, intelligent, and intelligible reasons for doing so. If he differs earnestly, respectfully, and reluctantly from them, he ought to be borne with, unless he has abandoned altogether those principles which he held when he came before them, and which constituted the reasons why he was chosen. In such a case he is bound to resign.

Our argument is, that constituencies, especially if large and popular ones, should judge with caution, with sense, and with liberality. A member should feel that he is in fair and not capricious hands—that the confidence in him is not lightly given nor lightly withdrawn. We should like to see what is called a "working class" constituency, wiser, graver, juster, more staid in their acts than an ordinary constituency. We wish to see them act without hasty suspicions, or passionate determination. Such conduct would do more than a thousand theoretical arguments to incline Parliament to increase the power in their hands.

At the same time, we would not hand over constituencies to the caprice or irresponsible dictates of members. The doctrine of a member's independence is often carried much too far. Men like Mr. Bernal Osborne, just returned for Nottingham, seem to abuse the right of self-action. He declares he will never give a pledge; and many members who never mean to keep any promise, cover their conduct and evade all responsibility by a show of independence, which affects to regard pledges as improper or degrading. Now, no one expects a member to pledge himself always to be of one opinion upon every question, of which he knows nothing, which he has never studied, and is unaware of what may be said on both sides. But on great public questions, which have been agitated for years, he does know something, he ought to know something, and if he does not he has no business to be a Member of Parliament. None require Mede and Persian pledges, which can never be changed; but explanations of what a man's opinions really are are wanted, and ought to be given, and can be given. A man can tell how long he has held his opinions, why he has held them, and how long he is likely to hold them. Weathercock members, blown about by every ministry, or puffed round by every party that gets in the ascendant, who have one opinion one day and another the next, and who say they will give no pledges because what they really mean is that they have no convictions, and can't afford to keep a conscience—these

are members whose proper place is at the bottom of the very first poll to which they can be brought.

Electrotyping.

ELECTRO-GILDING AND SILVERING.

The Gold Bath.—Gilding can be done either hot or cold; in each case the composition of the bath is the same, only the gilding with a warm bath is generally richer in tone, and may sometimes render *colouring* unnecessary. With a cold bath, necessitated by the difficulty of heating large masses of liquid for the production of bulky articles, *colouring* is always indispensable. Gilding by cold baths has nearly disappeared from workshops where steam is employed.

The baths are formed of double cyanide of gold and potassium. Dissolve 2 oz. of gold in *aqua regia*; evaporate the solution to a syrupy consistence; redissolve it in warm water, and add, little by little, 2½ lb. of cyanide of potassum, previously dissolved in water. This will make about thirteen gallons of bath. It is best not to employ it until it has been boiled several hours. The most suitable temperature for the bath, when in operation, is 160° Fahr.

Immerse in the bath a plate of gold put in communication with the positive pole, and which serves to feed the bath continually. In proportion as the gold is deposited upon the object to be gilt placed at the negative pole, a nearly equal quantity of gold is dissolved at the positive pole, and maintains the bath in the same state of saturation.

By this arrangement the cold baths acquire great durability; it is also applied to warm baths, but they deteriorate very quickly. The cyanide of potassium is destroyed by a prolonged boiling. The electric current is furnished by a Bunsen's battery, the number of cells being regulated by the nature of the article to be gilt.

Before putting the articles into the bath, they are rinsed in alcohol, in order to dissolve the greasy matters by which they are soiled; next into a bath of dilute nitric acid; then into a bath of acid nitrate of mercury, strength 4 per 100; and lastly, rinsed in abundance of water: the articles are then ready to be immersed in the gold bath. The time of the immersion varies according to the thickness to be given to the coating, and is in direct proportion with the weight of gold deposited.

To ascertain the weight of gold deposited, two weighings are necessary; the first, when the articles are about to be put into the bath; the second, upon the gilt and dried articles.

All the metals gild equally well in the above bath, but steel requires a more concentrated solution, or, what is better, a previous coppering in an alkaline bath. Aluminium cannot be gilt directly; it must be coppered also. In this case an acid copper-bath is best for the purpose.

Reserves.—By means of reserves we may obtain various artistic effects, for which taste is the only guide. The most suitable varnish for this kind of work is composed of copal varnish, oil, and chromate of lead. This varnish is applied with a hair pencil to all those parts of the article where it is not wished that the metal should be deposited. When it is allowed to dry properly it is not attacked by acid or alkaline solutions. It is completely dissolved by essence of turpentine or light coal oil.

Green and Red Gilding.—We may obtain green gold and red gold directly by the battery. For green gold a solution of the double cyanide of silver and potassium is added to the gold bath until the desired colour is obtained; then we operate with an anode of gold alloy. In this process, as in all those which have for their aim the deposit of metallic alloys, it is very important to well proportion experimentally the surface of the anode to that of the article to be gilt. To obtain red gold a solution of cyanide of potassium and copper is added to the gold bath. But the result is obtained more easily with the mixture formerly employed by the mercury-gilders, which consisted of 25 parts of acetate of copper, 65 of cream of tartar, and 10 of table salt, applied with a soft brush. The articles are heated over charcoal until the salts assume a brownish colour; they are then cooled in water acidulated with nitric acid.

Upon removal from the gold bath the articles are generally of a tarnished colour, in which state they are unfit for sale. They have, therefore, to undergo several operations with the scratch-brush, and colouring and burnishing.

Polishing.—This operation is performed with a scratch-brush of brass wire, the diameter of which varies according to the delicacy of the article. It is always performed under a liquid—generally liquorice-water—the object of which is to form a light mucilage, which admits of the scratch-brush rubbing the gilt article less roughly.

For smooth surfaces the hand-labour is replaced by the wheel. Upon an axle revolving 600 times a minute a mandrel of copper is mounted, furnished with a brass wire brush; a reservoir above constantly supplies the brush with the mucilaginous liquid, which flows into a lower receptacle. One workman can accomplish as much with the wheel as ten without it.

Colouring is performed by means of a mixture called *or molu*, and composed of 30 parts of alum, 30 of nitrate of potassa, 30 of red ochre, 8 of sulphate of zinc, 1 of common salt, and 1 of sulphate of iron. It is applied with a soft brush. The articles are placed over a clear charcoal fire until the salts, melted and dried, assume a brown aspect; they are then suddenly cooled in nitric acid water containing 3 per 100 of hydrochloric acid; afterwards washed in abundance of water and dried with sawdust.

Burnishing is effected by means of hard stones—agates, hematites—mounted in strong wooden handles, or with tools of highly-polished steel.

Flat Gilding. — Starting with the principle—"As is the surface so is the gilding"—if we can obtain a perfectly *mat* surface before gilding, it is evident that we shall have very little to do in order to retain this aspect after gilding. The result has been obtained by previously depositing a *mat* coating of a less costly metal than gold, the deposit of which can be easily regulated.

Silver and copper equally accomplish this aim. The silvering is performed in baths, which will be described in our next; only the silver bath must not contain more than eight grains of silver per 1,000, and the deposit must be made slowly with a very weak current. The coppering is performed in the usual baths of sulphate of copper, after a first coating given in the alkaline copper bath. The time of immersion and the energy of the pile are conditions which a little practice will soon teach.

The articles being perfectly *mat*, are conveyed to a more dilute gold bath than that prescribed above, which is worked warm. It must not contain more than five grains per 1,000. It is important to continually move the articles about in the bath, and to manœuvre the anode so as to render the colour uniform. Gilding upon copper, less costly than gilding upon silver, is usually of an inferior tone of colour, and more liable to oxidise; so the latter metal is generally preferred.

POLISHING-WHEEL.

The metals deposited under the influence of the electric battery do not always present the same physical characters.

Sometimes the deposit is rough and brittle, at others soft and flexible; sometimes it possesses intermediate qualities, and is as perfect in its physical properties as the best rolled copper; lastly, it may be deposited under the form of a non-adherent crystalline powder.

These different molecular states depend on the relations which must exist among the four following conditions—1st, the proportions of the two electrodes; 2nd, the strength of the solutions; 3rd, the temperature at which the operation is carried on; 4th, the intensity of the pile.

In all cases, it is important that the relative surfaces of the anode and the articles in communication with the negative pole be nearly equal. A positive electrode larger than the negative electrode tends to produce a crystalline deposit, which may extend to the pulverulent state, if the difference in their dimensions is very considerable.

By working with a too concentrated solution,

* Continued from page 309.

the deposit is rough and brittle; increasing the intensity of the battery will restore the deposit to its normal state.

If the bath be too weak, or the temperature be too low, the deposit slackens, and assumes a crystalline appearance, which may be easily made to disappear by raising the temperature, or by diminishing the intensity of the pile. If the temperature be too high, the deposit will become pulverulent. This may be remedied by diminishing the power of the pile employed. The regulation of the intensity of the current is, in most cases, the remedy to apply to the accidents that occur.

Therefore, it is on the perfect equilibrium among these four conditions that the galvanic precipitation of a metal with all its special qualities of ductility and malleability depends. The operator soon acquires the means of working satisfactorily.

In those cases in which a simple cell is employed the success of the operation depends on the relation between the zinc surfaces and the number of articles to be coated. With perfectly saturated solutions, and a weak current, success is certain.

Rambles among Country Clubs.

COMMUNICATED BY THE REV. H. SOLLY.*

"From B—— I went to B——. The Club there occupies two rooms, for which it pays £12 a year rent and taxes. One of the two rooms is used as a reading-room, and the other as a smoking and recreation room. In the latter are a piano, bagatelle-board, and the necessary appliances for the games of chess, draughts, and dominoes. The Club does not possess any skittle-alley, nor yet any kind of recreation ground. Its reading-room is well furnished, and it has a small library. It has no means of accommodating classes. In the winter a social meeting, at which songs, recitations, &c., are given, is held once a week in the reading-room. The number of members is about sixty, paying 2d. per week each, and the Club is not in debt. Its prosperity is due, under Providence, to the unceasing exertions of its secretary, Mr. ——, aided, whenever requisite, by the generous assistance of F. J. ——, Esq.

"My next visit was to D——. Soon after its opening, the D—— Club had nearly 300 members; at the time of my visit there were but about ninety. The average number last winter was 120. Originally the members were all working men; but now they are chiefly tradespeople, clerks, and the better class of apprentices. For some time past the number of working men among the members has been under twenty. The original terms of subscription were 1s. per quarter, or 4d. per month; but last Christmas the terms were raised to 1s. 6d. per quarter, or 6d. per month. The Club pays £16 a year for its premises, which comprise a reading-room, a conversation and smoking-room, a bagatelle-room, and apartments for the housekeeper. The housekeeper, besides being allowed to live rent free, and being supplied with coal and gas, is paid 7s. per week. The Club possesses neither recreation-ground nor bowling-alley. It has two bagatelle-boards, however, and several sets of dominoes, chessmen, &c. &c. There is, also, a good piano. It has no library, and, not possessing any rooms available for the purpose, has not been able to do anything in the way of classes. Last winter something or other in the way of an entertainment was provided for the members once a week; but the committee of the Club seem to feel that they have got almost to the end of their resources in that respect, and strongly urged upon me the desirability of the Union putting itself in a position to *lend* to country Clubs, on moderate terms, magic-lantern slides, *apparatus for the performance of conjuring tricks*, or any other such aids to innocent amusement. They were getting into debt, too, and felt that the Club must die unless something could be done during the coming winter to put new life into it. They had some thought of commencing the winter season (last year they began it with a tea-meeting) with a public meeting at the Corn Exchange, if the Secretary of the Union would go down and attend it. They were also very desirous to receive from the Secretary of the Union all the information and advice he could render with respect to the establishment of *provident societies* in connection with Working Men's Clubs, some of the members of the committee being of opinion that the only hope of the D—— Club lay in the establishment of some kind of *benefit, saving, or loan club* in connection with it. A perhaps larger proportion of the working men of D—— than of most other towns possess 'allotment gardens;' and 'beau shows,' invariably held at public-houses, are very popular among them. This has led the secretary of the D—— Club, Mr. B——, to conceive the idea of endeavouring to attract working men to join it by arranging for an annual horticultural show in the Corn Exchange, *to be exhibited at only by members of the Working Men's Club.* The persons who exhibit at each 'beau show' have to pay something, in order to acquire the right to exhibit; and the money thus paid by all exhibitors is divided, as 'prizes,' among the most successful ones. Prizes would have also to be given to the most successful exhibitors at the show which Mr. B—— proposes; but Mr. B—— believes that he could collect the money for the prizes, so that the subscriptions of all persons who might be induced to join the Club by reason of none but members of the Club being eligible to exhibit at the proposed horticultural show would be available, without deduction, for the purposes of the Club. I must add that I found the committee very much perplexed by the *boy* question. More than half the members of the Club, at the time of my visit, were under nineteen, and a great many were not more than seventeen; and the younger of this section of the members were in the habit of almost monopolising the *games*, so that other members could scarcely ever get a turn at them. In this and other ways the 'boys' had been the means of driving away many older members; and I found the committee divided in opinion as to which course would enable the Club to render most service to the community—that of dismissing the boys, in order to render the Club more attractive to older members; or that of keeping the boys, and so preventing their forming public-house habits, though at the cost of keeping older men away. I shall forward with this a copy of the rules of the D—— Club. At the time of my visit the Club was in debt to the amount of something under £10. Its income was not providing for more than two-thirds of its expenditure, and the committee was getting hopeless of obtaining donations wherewith to meet the other third.

"The worthy secretary of the D—— Club, Mr. B——, was earnestly desirous that I should visit the 'Workman's Hall,' at M—— L——, and was kind enough to drive me over for the purpose. This admirable institution owes its existence to the late Mr. Edward Gaunders, of Bath, who bequeathed to certain trustees £1,000 with which to establish it, and prescribed the plan on which it must be conducted. As certain essential '*club*' elements are thereby denied to it, I need not trouble you with particulars concerning it. I will send with this, however, a printed account of it, which was given to me."

[N.B. I hope to give some interesting particulars shortly of the work this Hall has been doing since it was opened. I heard the other day that every public-house but one had been shut up, in consequence, in the town, but I have as yet no authentic statement.—H. S.]

"The last place at which I called was M——. There I found a Club, which was opened on the 29th of December last year. During its first quarter it averaged 209 members; at the time of my visit it had about 150. The members pay 1s. per quarter, or 4d. per month, or 1d. per week. They possess the most comfortable Club-house I have seen. It is a house belonging to the Marquis of A——, who is the President of the Club, and the Club occupies the whole of it. The Club owes its existence mainly to Dr. F——, of the M—— College, and this gentleman collected about £200 with which to start it, nearly the whole of which sum was spent in adapting and furnishing the Club-house. In consideration of its having spent so much money in improving the premises it occupies, the Club is not to pay rent for them for several years. The premises comprise a reading-room, a recreation-room, a smoking-room, a kitchen, and apartments for the housekeeper. The reading-room is supplied with not fewer than seven daily papers,* and twenty-one weekly and monthly journals, and the games-room with a bagatelle-board, two sets of chessmen with boards, *seven* sets of draughts with boards, five sets of dominoes, and with appliances for several other games, as solitaire, German tactics, &c. &c. The Club also possesses the nucleus of a good library. During the winter it provided for its members a considerable number of admirably-managed and very successful entertainments. It has done nothing yet in the way of classes or lectures, but it contemplates making strenuous efforts in those directions during the coming winter season. Its experience, so far, has been very pleasant and satisfactory, and its prospects are altogether very promising."

* Continued from page 311.

* "These are all *given* to the Club, by members and others, and their only *cost* to the Club is thus 9d. a week for collecting them."

STRIKES AND EMIGRATION.

It is much to be regretted that emigration has been connected with disputes between masters and men as a means of producing an artificial scarcity of labour. Emigration is at the present time a subject of such serious importance to whole classes of labouring men, that it is most desirable they should be allowed to deliberate upon it, having regard only to its independent merits, and without the slightest regard to any temporary derangement of the relations of masters and men in any particular trade. The frequency of strikes of late years in England is one of the circumstances which every right-thinking working man will, no doubt, take into account as one of the disadvantages of his home; and to this extent strikes have a direct and legitimate bearing upon emigration. The first duty of a man who contemplates this most grave resolve a working man can ever make, is dispassionately to view his general position at home, and then to estimate upon trustworthy data his probable position in the place towards which he is directing his inclination. If, upon this, his determination is to emigrate, let him go with a full assurance that he has earned the honour, and deserves to reap the whole reward due to a man who, under circumstances requiring a very high degree of moral courage, was brave enough to do his duty. At a time of conflict, of bitterness and wrath, a man is not in a state of mind to take an unprejudiced view of his normal position. During a trade disagreement a man generally labours under a sense of some wrong which he is powerless to redress, and in angry temper he magnifies the difficulties and diminishes the advantages by which he is surrounded at home; whilst his mind is more than usually open to the exaggerated or perhaps positively false impressions of the condition of things described to him as existing in some happier land far away. This, then, is the time when the working man is least capable of forming a trustworthy judgment upon the momentous question of emigration. Even if left to himself, he would be in danger of rushing upon an uncertain future. He is not, however, even left to himself, for immediately a strike sets in emigration crimps mingle themselves amongst the working classes, and use, in canvassing for emigrants, the ordinary artifices of the recruiting sergeant. These men use the deluded artisans to gain head money from the transport ship owners, or to be played like pawns upon the squares of an allotment map by some Yankee land jobber.

These rash emigrations, in a large proportion of instances, lead to great misery, and, if any are fortunate enough to return from their voluntary exile—and sometimes the stronger members of families do succeed in getting back home—they justify their return by painting in colours too dark the miseries they encountered in their new home. Although such experiences will not prevent emigration, yet they create prejudice against certain localities, and thereby unfairly bias the judgment of those to whom an entire change of the field of labour would be a great and permanent advantage.

What has been already said upon the subject of emigration is only incidental, and collateral to the main argument against its use as a means of affecting the value of labour in any given trade. The fact is, the rules which govern market value are not disturbed in their operation whether attempts are made to alter the relation of supply to demand by one means or another. If a hundred men are withdrawn by emigration, the capital for employing those hundred men will soon be withdrawn also. It is only a question of the transition disturbance whilst the market is righting itself. Practically it does not matter whether by restrictions upon apprenticeship, stint of days' work, or other means, you prevent something coming into the commodity side of the scale, or whether you take something out of it by emigration; the effect in either case is the same, for it is in either case equally easy to take a corresponding portion of the weight out of the other side, and balance the scales. An arbitration would certainly check the operations of your strike-hunting emigration agent.—"*Strikes and Arbitrations*," *by Rupert Kettle.*

Growth of Plants.—M. Duchartre, who has been investigating the rate of growth of plants by day and by night, considers that the greatest increase in length takes place at night. His measurements have been made on the vine, the gladiolus, the strawberry, the hop, and other plants.

Co-operation among the Fisher-folk.

IN TWO PARTS.

PART I.—THE OYSTER-FARMERS.

PERSONS having occasion to visit Canterbury should not fail to extend their tour to Swale Bay, at the mouth of the Thames, and so see Whitstable, which, in the elden time, was the port of the famous ecclesiastical city. The ancient town of Whitstable is interesting as being still, even in this age of rapid change, a fishing-place pure and simple. No gaudy villas or plastered terraces of inconvenient houses have yet been erected for the accommodation of summer visitors. The place still retains its primitive appearance of a long row of cottage-like houses, as also its "fish-like smell." Its old commerce in oysters still forms the staple industry of the place; and it is the mode in which that commerce is carried on that renders Whitstable interesting to persons who study the specialities of labour—for the fisher-people of Whitstable are what may emphatically be called "a peculiar community;" in other words, they carry on their business as oyster-farmers, on the co-operative instead of the competitive principle, and have most successfully done so for a period of more than seventy years.

One has but to peep into the well-filled shell-fish shops of the great metropolis to see that there is a large trade carried on in oysters; but very few of those who indulge in the delicious bivalve know much about the organisation which is constantly at work for their benefit. They have, perhaps, a dim idea that men go out in boats to the deep waters, and shovel the oysters up as they are required for the London market. They are not so curious in their inquiries as to have ever penetrated so far into the county of Kent as Whitstable, nor have they at any time had the happiness to find a cover laid for them at one of the oyster feasts of Colchester. "Let us have street oysters, 'channel roughs,' at four a penny, or 'natives,' fattened out of all flavour, at a shilling the dozen," is about all that oyster-eaters desire; where oysters come from, how they are bred, how they are captured, and what is their natural history, is of no moment, so that the passing desire be satisfied.

The idea of a regularly-worked oyster-farm—a farm with its watery fields, and its produce in different stages of progress, from the tiniest infant oyster up to the marketable animal—does not all at once come home to us; but at Whitstable there is such a farm, and it is about this sea-farm and those who work upon it that we now desire to give a little information.

To those who are versed in natural history there is nothing very astonishing in the idea of an oyster-farm; for the oyster, being, so to speak, a non-progressive animal, is easily dealt with, as, by means of a dredge, it can be brought to the surface of the water for examination, and so can be easily transplanted from place to place. Many persons, no doubt, think that the oyster would grow and multiply as well if it were let alone as it does under cultivation—that Nature is all and all; but to suppose that would be a great mistake. The oyster is rendered doubly, or, indeed, twice doubly valuable by cultivation; and an oyster-farm requires the same care and attention that an agricultural farm requires: there is a time to sow and a time to reap in the liquid water-fields of the sea, as there is on the more substantial fields of the solid earth. The cropping and cultivation of an oyster farm goes on in some of its varied departments all the year round. At one period the brood is sought for and laid down on the beds; at another time the men dredge for the market; and when not employed in either of these operations, they are employed in cleaning the ground and rooting out the enemies of the oyster.

As some of our readers may be aware, the oyster yields an enormous number of young; but it is not known for certain whether each oyster spawns once a year or at periods of a longer interval; and in some years the "spat" perishes, or, at least, never comes to maturity, in consequence of cold or uncongenial weather. A full spatting season—and to obtain a full spat, the weather must be warm and genial—will supply brood for three or four years. Of late years, however, the spatting has been very intermittent; the best falls we have had for some seasons were in 1859—60. If the spat emitted by the oysters belonging to the Whitstable Company were to fall on their own grounds, the co-operators would soon become enormously wealthy; but the spat from the native oysters at Whitstable is usually wafted away by tides or waves to a considerable distance, so that it may fall, perhaps, on what are called "the flats," and the oyster-farmers will have to buy it all, or as much as they can obtain of it, back again, in order to nurse it into edible oysters for the London market. After the spat has had time to form into oysters it is dredged up by dredgers in boats, or gathered by persons who make a business of collecting it on the foreshores when the tide is at ebb, and sold either to the Whitstable farmers or to others who have private beds of oysters. The oysters at this stage are called breed, and in size they range from the circumference of a threepenny piece to a sixpence. As showing the value of oyster cultivation, it may here be stated that in four years a bushel of brood will grow into five bushels of oysters! A great deal of money used to be earned by persons going out to gather these young oysters, as they are always eagerly bought (more especially during recent years, when the spat has been intermittent) by the oyster-farmers, whose business it is to grow them till they become of the requisite size for consumption in the London or other shops. A period of from three to five years is necessary for the full growth of an oyster. Some persons say they can send their oysters to market at the end of about thirty months; but the present writer thinks it would be far better for the grower if oysters were not sent to market till they were fully four years of age.

The extent of ground cultivated by the oyster-farmers of Whitstable is about two square miles, and the beds are constantly covered by the water, except on very extraordinary occasions. A general fishery has existed at Whitstable from time immemorial, but of late years the men have directed their attention solely to the cultivation of oysters. In the year 1793 the Whitstable fishermen purchased the foreshores on which they now reside, as well as the exclusive right of fishing, from the lord of the manor. At the time of their formation into a guild, in the year we have named, the number of members was not more than thirty-six; but at present there are at least 300, besides 108 who are non-effective, widows, &c. They began their labours deeply involved in debt, having had to borrow no less than £30,000 to pay for the ground and stock it with oyster-breed. The company has long since paid off this debt, and two years ago their stock of oysters was valued at nearly half a million sterling. These Whitstable men pay enormous sums every year for brood, and in some seasons they have been able to sell about £100,000 worth of oysters!

The directors, who more immediately carry on the business of growing and selling, are elected by universal suffrage; there is a foreman, an under-foreman, and a treasurer, and these three officers appoint a jury of twelve of the dredgers to aid them in carrying on the business in all its various branches of buying, selling, and cultivating. It is the duty of the officers and their jury to decide how many oysters shall be dredged for the market, in which decision they are, of course, guided by the advices sent from their London salesman. At present any number of oysters could be sold in the London markets; but, of course, in the absence of a plentiful spat, and in the face of an ever-rising market, it is necessary to proceed with caution, and not to send away too much of the stock.

One cannot become a member of the Whitstable Oyster Company except by birth, as only the sons of the dredgermen are eligible. Widows are supported from the funds of the company, and are allowed one-third of the income which is made by the men, and the men of Whitstable earn good and regular wages, and obtain an occasional bonus as well. They have not earned less out of the farm during the last eighteen years than £1 3s. a week, and the bonus, in 1863, was as much as £20. It is thought that the present earnings of the Whitstable men on their own farm will be fully £100 per annum; but, as only a comparatively small portion of the men's time is taken up by the work of the farm, they have many opportunities of adding to their income by gathering brood on the "flats," or going out for whitefish. Upwards of £34,000 has been paid at Whitstable for wages in the course of a year, and all the work required in return from the men may be performed in three hours! The work of dredging for market is, of course, only carried on during those months in which it is legal to dredge, and the "stint" of work appointed for each man does not take more than two hours to perform. In the off season, when the men dredge for what they call the "planting"—*i.e.*, for the purposes of keeping the ground clean, and killing the numerous enemies of the oyster—they generally work about four hours at a stretch. The work performed during the close season is of great value in preventing the accumulation of mud or weeds upon the ground, as these would soon prove as fatal to the oysters as the five-fingers and mussels, which are the greatest enemies of the bivalve. Another operation that is then performed is the classifying and arranging of the stock: the large oysters are set aside on the market-ground, and the smaller ones are relegated back to their watery beds till such time as their beards be grown. The labour on the farm, it will thus be seen, is not by any means oppressive, and the men have ample time to earn extra money by working for themselves, assisted by their families.

As showing the amount of business done by the oyster-farmers of Whitstable, the following figures will be found interesting:—The quantity of brood bought for cultivation, cost, during the last five years, the sum of £80,000, the average price, in consequence of its scarcity, being 12s. per wash. The oysters sold in the same period of time amounted to considerably over a quarter of a million sterling!

There are other oyster companies, both in Kent and Essex, that carry on their business after a similar fashion. There are in all twenty-seven square miles of water devoted to the purposes of oyster-farming at Whitstable and its immediate vicinity: fifteen miles of this is private ground, and the rest is public, except in so far as a portion of it has been ceded by Parliament to a joint-stock company. On these grounds, public and private, upwards of 3,000 men find a means of support for themselves and families, and it is estimated that nearly £200,000 per annum is spent in wages in connection with the Kent oyster-farms. The coast of Essex is equally rich in its private oyster-beds; but, as we have something that is interesting to relate as to the doings of other classes of fishermen, we shall pause for a while.

THE AMALGAMATED SOCIETY OF ENGINEERS.

THE fifteenth annual report of this society consists of 367 closely-printed pages, and almost equals in size one of the ordinary Parliamentary blue-books. Some of the facts made known by the report and the numerous pages of figures are very remarkable. It appears that, during the past year, the Amalgamated Society has added nearly £28,500 to the previous accumulated fund, owing to the reason that during the year trade has been exceedingly good; 3,583 new members have been added, and at the close of December there were, in all, 30,978 members. The accumulated fund of the society at the close of the year amounted to no less than £115,357 13s. 10½d., or £3 14s. 5½d. per member, apart from the arrears, although the expenditure during 1865 was as much as £49,172 6s. 2d. About seventy of the branches have deposited their funds in the Post-Office Savings Banks, amounting to about £24,000, "and I believe," writes the general secretary, "many more will avail themselves of this privilege—a privilege obtained through the kindness of the Chancellor of the Exchequer, Mr. Gladstone, who richly deserves the best thanks of this as well as all similar institutions." During the year £14,070 4s. 9d., or 9s. 1d. per member, has been paid to members out of employment, being £2,355 less than that paid in the previous year. On sick benefit there has been paid £13,785 14s. 9d., or 8s. 1d. per member expended—the two benefits requiring no less a sum than £17,855 19s. 6d. to support them during the year. To superannuated members the sum of £5,184 17s. 4d. has been paid, being £1,282 11s. 9d. more than in the previous year. This difference is caused by the increased benefit now allowed to the members who, through old age or infirmity, are under the necessity of claiming superannuation. This is a most important benefit of the society, and one that cannot be too highly appreciated by the members generally, for it has proved a great solace and relief to many old and deserving members, 260 of whom were in receipt of its benefits at the close of the year. In cases of accident the sum of £1,800 has been expended, being £500 more than the amount paid in 1864. The funeral benefit amounted to £4,887, or £985 in excess of the previous year, so that the sum of £39,728 2s. 10d. has been expended in payment of the five principal benefits—namely, donation to unemployed members, sick, superannuation, accident, and that of funeral, during the year.

The Needlewomen's Institute.

The following account of a visit to this useful institution, situate at 2, Hinde Street, Manchester Square, is extracted from a new and interesting volume, by the author of "Doing and Suffering," &c., entitled "Lending a Hand," of which we intend giving a notice in the next number of our Journal:—

"Our ring is answered by one of the very smallest specimens of 'Buttons' we ever remember to have seen; active as a little sprite, however, and well up to the duties of his calling, which are, at the present moment, to usher us into the presence of Miss Ellen Barlee, whose interesting book, 'Our Homeless Poor,' gave the first impulse to this scheme for the employment of women, and whose untiring exertions have maintained and fostered it, till it has reached its present proportions, and deals with an income of £10,000 a year.

"From Miss Barlee we hear what classes the Institute is intended to benefit—not married women whose husbands are in health and in work, but widows, or wives whose husbands are suffering lengthened illness, and single women. It is her plan to receive *respectable* persons only, and no woman can obtain work who cannot obtain a recommendation from her clergyman or district visitor, or the city missionary of the district, or a subscriber: by this care at the outset, such an honest class of workers has been secured, that out of some 390,000 shirts which have been made by the women, mostly at their own homes, not forty cases of pawning or loss have occurred.

"Miss Barlee's aim has been to secure for the worker the increased pay which ordinarily, in a large contract for work, goes to make the profit of the middleman. She is herself the middlewoman between her *employées* and Government, receiving and becoming responsible for the execution of extensive contract orders, while she pays to the workwoman the highest price consistent with making this part of the operation self-supporting. The advantage to the workwoman will be apparent when we state that, whereas formerly the price paid by contractors to Government shirt-workers was from 3½d. to 4½d. per shirt, Miss Barlee gives 7d. for each shirt, with the additional help of the stitching being done by machinery, which is worth, in the worker's own estimation of time, 2d. per shirt more. A quick worker will make two and a half or three of these shirts a day.

"Our kind conductor took us into her office, a commodious room on the ground floor, answering to the dining-room of an ordinary house, where the indefatigable secretary, Miss St. John, receives ladies who come with orders for work, gets through her share of correspondence aided by a letter copying-press, and presides over a large cupboard full of account-books relating to different departments of the work, which might turn the brain of a less methodical accountant.

"Into these books we were privileged to look: one might be called 'a case-book,' and contained in a fourfold column the names of the women to whom work had been supplied, the names of the parties recommending, the circumstances of each case, and the reason for help being discontinued. No eye could glance down the column which told of the circumstances, without feeling the heart oppressed with its brief record of misery and want, sickness, death, misfortune, grinding poverty. A few words told the tale, and a thick folio volume was rapidly filling with such cases. Surely a blessing must rest on the effort which has searched out this misery, and met it with a fitting remedy! The column which recorded cases of dismissal from employment was almost empty, and for a most satisfactory reason. 'The conduct of the women,' said Miss Barlee, 'is now so uniformly good, that it is not once in the year I have occasion to complain.' Their sense of gratitude to herself was marked by their subscribing together, without her knowledge, to get for her a handsome dressing-case.

"Each woman is paid according to the quantity of work she accomplishes. We opened the wages-book, and taking a page quite at random, noted down the figures it contained, which represent the weekly earnings. They are as under. Only in one case, where the item is £1 1s. 3d., was the amount earned by mother and daughter; in all the rest they are single earnings, and the earnings in the case of in-door workers, of five days in the week, nine hours per day, for on Saturday the institution is closed for cleaning:—

s.	d.	s.	d.	s.	d.	s.	d.	s	d.
7	2	6	11	6	5	7	6	12	6
5	11	4	7	21	3	4	8	10	3
4	11	4	11	6	5	6	10	5	1
4	7	7	8	5	2	9	10	7	10
8	10	6	2	7	1	7	2	6	8

"This will give an idea of the substantial help rendered to these destitute women; about 100 work in the house, the remainder take their work home; this, in the case of widows with little children, is an important advantage.

"Rules for the out and in workers are framed and hung in conspicuous places in the institution; for the out-workers they are as follows:—

"Out-door workers are to arrive at half-past nine a.m. on Tuesdays and on Fridays, keeping regularly to their own day, and are to bring in the full number of shirts they took away.

"No Tuesday-worker will be attended to on a Friday, and no Friday-worker will be attended to on a Tuesday.

"The gate will be locked at half-past two p.m., and no worker admitted after.

"Any worker going in or out of the front door will be fined 3d.

"Any worker detaining her work beyond a fortnight will be fined. In case of illness she is to write to the secretary, and is to return the work, made or unmade.

"Any worker changing her residence is to inform the secretary and the inspectress.

"The work is required to be kept quite clean; any returned soiled, must be paid for by the worker.

"Cheerful obedience to the inspectress's orders strictly enjoined.

"Any worker found guilty of pawning the work would be dismissed from the Society altogether.

"For the in-door worker they are as follows. (We have given these rules in full, as we cannot but hope that this scheme for the employment of needlewomen will be transplanted to many provincial towns):—

"In-door workers are to arrive at five minutes to nine a.m., and remain in the workroom until eight p.m., when a bell will be rung, and the workers are expected to leave quietly and orderly. One hour allowed for dinner, and half an hour for tea.

"At half-past nine the gate is locked, and no one admitted after.

"Any worker going in or out of the front door will be fined 3d.

"Cleanliness and punctual attendance required.

"Workers absenting themselves from the workroom without some valid reason will be fined.

"Every woman to do that portion of work given to her by the matron.

"Industry and cheerful obedience to the matron's orders strictly enjoined.

"Tea and milk will be provided from the society's funds. Workers must bring their own bread, butter, &c.

"One penny in the shilling will be deducted from the payment of in-door workers, towards the expenses of the Society.

"That is to say, for one penny in the shilling deducted from their earnings, Miss Barlee provides them with tea, milk, cotton for their sewing (which is an annual expense to her of from £60 to £70), gaslight, and fires both in the workrooms and kitchen, implying some ten or eleven fires burning all day, and a consumption of about a ton of coals in the week.

"We paid a visit to the kitchen, where the in-workers take their dinner and tea, and thought it most inviting—a large airy room, with clean benches and wooden tables; a glowing fire on one side, where the rasher might be fried, an oven where a meat-pasty might be warmed and made relishing, and the tea-caldron ready for use.

"A short prayer when they first arrive in the morning, gives its tone to the day's industry. On Friday afternoon a short service, from half an hour to an hour in length, is conducted in the large workrooms by a clergyman. Miss Barlee is very glad when London clergymen will volunteer assistance for this little service. It usually remains in the same hands for a month: she can generally ensure to her clerical friends a congregation of about 100 women. She is also glad to provide for the instruction and amusement of the workers through the kind assistance of lady-readers, who read aloud in the workrooms.

"The cutting-out department is a business in itself; it is carried on in a separate room by two men-cutters and one woman-sorter, whose proceedings we watched with no little interest. On cloth, folded so that 120 pieces can be cut at once, an iron plate is laid of the shape and size of the shirt-collar or wristband to be cut, and the sharp blade of the cutter's knife is run five or six times energetically round the edge of the plate, till it has penetrated all the folds, and reached the wooden board on which the cutting is done: it only remains to separate the pieces which the knife has imperfectly reached with a pair of gigantic scissors. Every Government shirt consists of twenty-two pieces, and must go through the processes of cutting, sorting, stitching by machine of collar and wristbands—giving out the shirt to the worker, taking it in, inspecting it (we saw some shirts in the inspector's room rejected and returned for alteration, because one side of the collar was a quarter of an inch higher than the other), folding it, tying the shirts together in bundles of ten, and carting them away to the Government depôts. About 390,000 of these Government shirts have been already executed by the needlewomen of this institution.

"Our next visit was to the storeroom, a gloomy place enough, but important for the wealth of goods stored away there, waiting to be cut out and made up: it frequently contains several thousand pounds worth of material. Our eye fell on masses of a rough sort of rope in hanks. 'What is to be made with this?' we asked. 'Oh, that is only string to tie up the bundles of work.' Two large worn-out cutting-boards, hacked and hewed beyond all further possibility of planing, won our respect in the storeroom: we thought how much hard, honest labour those roughened surfaces represented.

"All that we had seen hitherto was on the basement and first floor; now we proceeded upstairs to the workrooms. The murmur of pleasure from the women, as Miss Barlee entered the room, showed how warmly her labour of love is appreciated. In the first room, not Government shirts, with the coarse, strong work appropriate to them, met our view, but delicate stitching and frilling, which would bear comparison with the performances of first-class sempstresses. We were in the room where orders for baby linen, ladies' under-garments, and *trousseaux* are executed. In a footnote* we give the approximate prices for making such articles—we say *approximate*, because in all cases the woman is paid in this institution *according to the actual amount of work done;* and it is possible to give orders for under-garments, implying an amount of work which will run them up to almost any price. We saw an enchanting baby-frock, which might have made any mother's mouth water—price, three guineas; but then, in addition to expensive embroidery, this little elegancy was decorated with a number of tucks we did not undertake to count, each about half-a-quarter of an inch in depth.

"Our next visit was to the machine-room, where eight sewing-machines keep up a cheerful cackle, and eight young machinists (chiefly children or very young girls) turn off, with rapid movements of hand and foot, the collars and

* LIST OF PRICES FOR PRIVATE FAMILIES.

		s.	d.		s.	d.
Making Gents' Shirts	from	2	6	to	3	6
,, ,, Night Shirts	,,	1	10	,,	2	0
,, ,, Collars	,,	0	3	,,	0	6
,, Boys' Shirts	,,	1	6	,,	2	6
,, ,, Night Shirts	,,	1	3	,,	1	8
,, Ladies' Morning Gowns	,,	6	0	,,	10	6
,, ,, Dressing ,,	,,	4	6	,,	6	6
,, ,, Combing Jackets	,,	2	0	,,	4	6
,, ,, Bodices	,,	2	0	,,	3	6
,, ,, Night Gowns	,,	2	0	,,	5	0
,, ,, Chemises	,,	1	9	,,	3	6
,, ,, Petticoat Skirts	,,	1	6	,,	6	6
,, ,, Drawers	,,	1	6	,,	2	6
,, ,, Flannel Petticoats	,,	1	6	,,	2	0
,, ,, Satchets	,,	1	0	,,	4	0
,, Children's Dresses	,,	2	6	,,	10	6
,, ,, Petticoat Skirts	,,	1	0	,,	2	9
,, ,, Pinafores	,,	1	0	,,	2	0
,, ,, Night Gowns	,,	1	3	,,	2	0
,, ,, Chemises	,,	0	9	,,	1	6
,, ,, Drawers	,,	0	9	,,	1	6
,, Infants' Monthly Robes	,,	3	0	,,	15	0
,, ,, Petticoats	,,	1	9	,,	3	6
,, ,, Flannels	,,	1	0	,,	3	0
,, ,, Shirts	,,	1	3	,,	2	6
,, ,, Gowns	,,	2	3	,,	3	9
,, ,, Night Gowns	,,	2	0	,,	3	0
,, ,, Pelisses	,,	4	6	,,	7	6
Hemming Pocket-handkerchiefs	,,	0	2	,,	0	6
,, Hemstitched	,,	1	3	,,	2	6
Making Tablecloths	,,	0	6	,,	1	0
,, Sheets	,,	0	6	,,	1	0
,, Pillow-cases	,,	0	4	,,	0	9
,, ,, frilled	,,	2	0	,,	4	0
,, Towels	,,	0	1	,,	0	2
,, Tray-cloths	,,	0	3	,,	0	6
,, Tea-cloths, Dusters, &c.	,,	0	1	,,	0	3
Marking each letter or figure	,,	0	0½	,,	0	0½

wristbands for the Government shirts, or any part of ladies' garments where machine work is preferred.

"Up-stairs again—on the next and highest floor occupied by the workwomen—was the inspector's room, flanked on either side by ordinary workrooms. Every garment must be subjected to rigid measuring and overlooking from the inspectress, every button fitted to its respective button-hole, before the work can be passed and paid for. The Government work is inspected by women engaged expressly for that purpose. Indeed, few people would have an idea of the staff required to work the institution effectively. The sum paid weekly in wages to the needlewomen themselves sometimes amounts to £150.

"It is satisfactory to be able to state that all the operations of the Society we have hitherto described, which may be called the *mercantile part, are now self-supporting*, and the charitable aid afforded by the public in the way of subscriptions and donations goes now entirely to the support of the Charity Funds of the Institution.

"The importance of having a Charity Fund at command can, perhaps, only be fully appreciated by those who are daily brought into contact with grinding misery, by a work such as that to which Miss Barlee has devoted herself. To use her own words, she can tell 'of widows with young children struggling with gaunt famine, dividing a penny roll among four children for their entire day's food; of emaciation and pain, unchecked, preparing their victims for our hospitals; of women lying on bare boards during frost and snow, without covering or fire; of children born to deserted wives, without any means to provide for them.'

"For cases such as these, the Charity Fund committed to her for distribution, under the sanction of a Committee, is invaluable. It is dealt out to the very poor and the sick, by grants of coals, grocery—chiefly tea—clothing, sending the sick into the country for change of air, and the purchase of hospital tickets for those who cannot be nursed at home. Grants out of the charity are also sent to all the local clergy who manage branch institutions; as, for instance, at Chelsea, Whitechapel, Southwark, and Camden Town."

Things Talked About.

The annual report of the Postmaster-General has been issued. It is more interesting than pages of statistics usually are, for it shows not only how the population of our country is increasing, but also the great extent to which the people avail themselves of the facilities of communication. It is trite to say that business is facilitated, but family affections and friendships are also strengthened by more frequent letters passing between relatives and friends at a distance. In the year 1864, the average delivery of letters to each person throughout the United Kingdom was 23; this average was raised to 24 in 1865, which slight advance means that there was a delivery of nearly 30,000,000 of letters over the number of the preceding year; but the average varied considerably in different parts of the kingdom. In England and Wales, for instance, the average last year was 28 to each person, an increase of 6½ per cent. So much for letters only. But when we add to the 720,467,007 letters delivered in 1865, 43,569,955 newspapers, and 53,682,811 book packets, we may obtain some faint notion of the work performed by the postmen in the three kingdoms. On the average—we cannot get away from the averages, for they make the matter one of individual interest—the postman knocked at the door of each inhabited house in England and Wales 151 times, or about three times a week. A tolerably large army of intelligent, hard-working, trustworthy men must be engaged in this work; and it is not very satisfactory to know that they are about the worst paid of any of the Government servants. Let us just mention, for the amusement of our young readers, that more than half a million of valentines were posted on or about the 14th of February, 1865.

The same report informs us that, in 1865, there were 611,819 depositors in the Post Office Savings' Banks, and that they held £6,526,400—a tolerably convincing proof, not alone of the prudence, but of the substantial prosperity of the class which furnish the great majority of the investors. If it were possible to ascertain how much more money is invested in other savings' banks, or building and provident societies, and in life assurances, there might be less disposition in some quarters to underestimate the forethought of the working classes, and their substantial interest in the preservation of order.

A short time since, the Home Office addressed circulars to the local authorities of several of our chief towns, making inquiries relative to the nuisance arising from smoke. Various replies to the circular are now made public. We hear of considerable diminution of the nuisance at Stoke-on-Trent, Liverpool, Newcastle-on-Tyne, Birmingham, Huddersfield, Leicester, and Leeds—places famous for the number of chimneys. There is great difficulty in enforcing the law at Sheffield, Derby, and Sunderland; and as to Manchester, the Registrar-General has published a report which is highly interesting, and should call general attention to the injurious effect of the continuance of the nuisance. Mr. Leigh, the registrar of the sub-district of Deansgate, reporting on the first quarter of this present year, says:—"Coal smoke forms a continual dark and dense canopy over the town, and causes a murkiness in the streets from which they are never free. On the finest day the air is darkened by haze, through whose wide extent the prospect seems bounded as by an impenetrable wall. The constant inhalation of these black particles (of which an analysis is given) must be highly irritating to the lungs, and productive in many instances of an amount of inflammation sufficient to induce incipient phthisis or bronchitis, or to determine the recurrence of these where a predisposition exists. A smoky town atmosphere must contain an abnormal amount of carbonic acid, and a distinct amount of sulphuretted hydrogen and of sulphurous acid; and I know of no circumstance more likely to predispose a population for the reception of fever or cholera than the constant inhalation of an atmosphere vitiated by the presence of sulphuretted hydrogen. This gas does exist in the atmosphere of Manchester. From the chimney of a perfect furnace nothing ought to be evolved but invisible carbonic acid, sulphurous acid, and watery vapour; all else means waste of coal and injury to health. . . . Manchester must be regarded in many respects as a model town; but it is one of the least healthy in the kingdom. Children under five years of age contribute half of the total mortality, while in the agricultural districts one-third of the deaths is their proportion. The artisan's wife dies in middle age; and his own career is cut short long before he has reached the seventy years' term allotted to man." Sheffield, as every one knows, is a smokier town than Manchester, and the deaths under five years of age are more numerous. Mr. Leigh slightly overstates the number at Manchester as one-half of all the deaths; but at Sheffield it exceeds the half. That smoke is injurious to vegetation is a familiar fact. Before the Act for the abolition of the smoke nuisance was enforced in London, and the steamers passing up and down the Thames added their clouds to the volumes pouring from the tall chimneys, there were no roses in the Temple Gardens; now, Mr. Broom, the gardener, can show a choice collection of the finest varieties. Flowers and shrubs will not thrive in impure air; and where they suffer, the health of human beings is in peril: a most potent reason for protecting our pleasure-grounds from the invasion of factories and gas-works.

We have bad accounts from Liverpool of the state of business. The prevalence of strikes is seriously embarrassing the employers of labour. In strong confirmation of our remarks last week, as to the effects of the warlike movements on the Continent, we hear that a manufacturer in Silesia (which, if the war breaks out, will be the first battle-field between Austria and Prussia) has sent word to several of his friends connected with the iron trade in England, that his works, which have hitherto employed 15,000 men, are now closed, and that he can send to England any number of experienced and clever artisans, that may be required.

The coalheavers of Birkenhead have insisted upon being paid, on and after the 21st instant, at the rate of 5s. per day, 8s. per night, and at the rate of 8d. per hour for dock work unconnected with the discharge of ballast or the loading of coal.

A strike among the chimney-sweepers would be a serious matter, especially as a new Act of Parliament imposes a fine on the occupant of a house the chimney of which catches fire. Yet such a movement seems to have been imminent. A meeting of the men has been held, at which it was stated that the average rate of wages now paid is 16s. per week, though in some of the best shops 18s. are given to journeymen, and 21s. to foremen. To earn this the men have to work from twelve to eighteen hours a day, commencing at two or three o'clock in the morning. The several speakers agreed that a society ought to be formed, and that none but society men should be allowed to work in the London shops. A resolution to this effect was unanimously passed—the standard of wages be fixed at 25s. a week; and it is said that several of the masters have agreed to the rate.

One very unpleasant result of the recent monetary panic has been made known. By the failure of the English Joint-Stock Bank, a balance of £700 from the entrance-money to the City of London Industrial Exhibition has been lost, and will have to be made good by the guarantors.

The early-closing movement has found support where it was not expected. The principal drapers in the Commercial Road East have resolved to close their shops on Saturdays at seven o'clock—rather a bold move, considering how much marketing is generally done on Saturday nights in this locality.

A Royal Commission will be moved for in the House of Commons to inquire into the probable quantity of coal contained in the coal-fields of Great Britain, and to report on the quantity of such coal which may be reasonably expected to be available for use; whether it is probable that coal exists at workable depths under the Permian, New Red Sandstone, and other superincumbent strata; and whether they would recommend that bore holes should be sunk in any and what localities. The Commission, if appointed, will also be charged to ascertain and report on the quantity of coal at present consumed in the various branches of manufacture, for steam navigation, and for domestic purposes, as well as the quantity exported, and how far and to what extent such consumption and export may be expected to increase; how far the increase of population must necessarily accord with the increased consumption of coal, and the relations which one is likely to bear to the other; and whether there is reason to believe that coal is wasted either by bad working or by carelessness or neglect of proper appliances for its economical consumption, and whether they would recommend legislation with a view to avoid such waste. We hope the Commission will be appointed, as it is most desirable to obtain authentic particulars on the subject. It will, we believe, dispel many delusions.

Co-operative Intelligence.

Settle Co-operative Society.—The twentieth quarterly balance-sheet of this flourishing society has just been issued, and is of an encouraging character. The amount received for goods sold during the quarter is £966 7s. 6½d., and the amount of profit £109 12s. 3d. This latter sum, less £14 6s. 2d. carried over to next quarter's profit account, was apportioned as follows:—To members, a dividend of 2s. 6d. in the pound, and to non-members half that dividend, on the amount of their respective purchases.

Warrington Co-operative Society.—The report just issued for the quarter ending March 31st says that the society continues to prosper, the sales having exceeded those of the last quarter by £129 14s. 10d. After meeting all liabilities, and writing off fixed stock account, £14 8s. 9d., as depreciation, &c., and adding the balance left from last quarter of £5 10s. to the reserve fund, increasing it to £23 1s. 9½d., they recommend a dividend of 1s. 4d. in the pound out of the profits for the quarter, carrying a small balance to reserve of £2 18s. 6½d.

Kilnhurst.—At the recent opening of the new and commodious stores in connection with the Co-operative Society at Kilnhurst, the secretary read an elaborate report, giving the origin and history of the society, in which it was stated that during the first quarter of the society's existence, in 1860, it sold goods to the amount of £129 9s. 2d. During the quarter just ending the sum had swelled to £851 5s. 9d., thus showing a great increase in the amount of business transacted. With regard to the new stores, they were erected at the cost of about £1,000.

General Information.

CLUBS AND INSTITUTES.

Metropolitan District Association of Working Men's Clubs and Institutes.—The adjourned meeting of Delegates of the London Clubs, announced in a former number of the Working Man to be held at the office of the Parent Society, 150, Strand, took place on Monday evening, the 14th inst., when about twenty persons, consisting of representatives of Clubs and of the Council of the Union, assembled. In the absence of A. H. Layard, Esq., M.P., who was detained in the House of Commons, Hodgson Pratt, Esq., was called to the chair, and opened the proceedings by reading a draft of the proposed rules and constitution for the District Association. Considerable discussion took place as to the name of the society, in which delegates from the St. James's and Soho, Kentish Town, Child's Hill, Clerkenwell, and other Clubs, as well as Mr. Solly and Mr. Pocklington took part. It was ultimately agreed to adopt the title at the head of this notice. Various other resolutions were come to, and it was finally resolved to print and circulate the constitution and plans of the Association among the Metropolitan Club Committees. It is confidently hoped that great benefits will accrue to all the Clubs which join the Association, further particulars with regard to which will be given in a subsequent number.

Halstead, Essex.—A public meeting to promote the welfare of the newly-formed Club and Institute in this industrious little manufacturing town was held on Tuesday evening, the 15th inst. R. E. Greenwood, Esq. (Manager of the London and County Bank), was called to the chair, and the Rev. H. Solly delivered an address, after which Mr. Collins, on behalf of the committee of the Club, and Mr. Ready, its secretary, moved and seconded a resolution pledging the meeting to support the society, which was carried unanimously amid applause. It was stated that the committee had obtained convenient premises, which they invited working men to come and see for themselves. About fifty members

had already enrolled themselves, and there was every prospect of a useful and prosperous existence for the Club. Mr. Courtauld's large silk-mills employ many hundred hands, and there is also a considerable number of other operatives. The Rev. Mr. Robertson moved and Mr. Simons (engineer) seconded a vote of thanks to Mr. Solly, which was carried with acclamation. Wm. Davison, Esq., manager of the silk-mills, who was on the platform, takes a warm interest in the prosperity of the club, but it is managed entirely by the working men themselves.

Hyde, Cheshire.—A Working Men's Club has recently been opened here. It originated in the following way:—The Rev. Charles Beard, B.A., inserted a letter in the local paper, stating that if the working men of Hyde would form a club, the funds necessary to furnish it with every convenience would be found by a gentleman whom he was not allowed to name. A number of working men took it up, and convened a public meeting, which was well attended. At that meeting a provisional committee was formed to make the necessary arrangements. They, fortunately, obtained a building which had been built for a public-house, and made it suitable for their purpose. It contains a large game-room, a reading-room, a smoking-room, a class-room, and a committee-room, besides rooms for the steward. The game-room is supplied with cards, draughts, dominoes, and chess. A bagatelle-board will be ready in a week or two.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

CO-OPERATION IN EAST LONDON.

To the Editor of the Working Man.

Sir,—As your paper is especially intended for working men, it may not be uninteresting for them to hear something about Co-operation. Monopoly is a curse, and has blighted many a fair prospect. Co-operation is the only effectual remedy for the great evil, and, rightly carried out, must have the desired effect. Four years ago, a few working men began the Victoria Equitable Provident and Industrial Co-operative Society, at 7, Preston Terrace, Green Street, Bethnal Green, N.E.—a very humble neighbourhood. They were few and poor; and after they had done their best, all they had to go to market with was 25s.—yes, £1 5s. With this they started, in a small room belonging to a well-disposed man, of whom they are now renting part of some premises which are used as a store and collarage. We believe in realities, not show and outsides. "Onward!" is our motto, but "steady progress" our aim. We have gone on step by step. We paid in our fourth year for goods, £1,936 19s. 3½d., upon which we realised a profit of £127 17s. 3½d. We have paid on the average on members' purchases, for the year ending March 3rd, 1866, 1s. 5d. in the pound, after all expenses were paid. We seem, after all, to be very small as a society. Our present number of members is only 150, all working men. What has been done by this society may be done anywhere, for in the neighbourhood we have had a great deal of competition, and, I think, sometimes unfair competition. We ask no credit, neither do we give any: our business transactions are for ready money. Our downfall has been predicted often. As to our perpetuity, I have no doubt similar societies around us have made a greater show than we have made, but, like some badly steered vessel, have become wrecks. We have had contrary winds and tides to sail against, but we are still seaworthy. The essentials to success in Co-operation are a good working committee, an honest storekeeper, an experienced secretary, and a judicious purchaser. These are just as necessary as a pilot to a ship. Our committee meet weekly to transact business and to enrol members. One of the secrets of our success has been the keeping down of expenses. If this brief statement should meet the eye of any who have not tried Co-operation, and happen to be near to us, let them give us a call, and I have no doubt they will be thoroughly satisfied, as our goods are neither dressed up nor adulterated.—Yours,

A Friend of the Working Classes.

April 23rd, 1866.

RAILWAY SERVANTS.

To the Editor of the Working Man.

Sir,—In reply to the letter of your correspondent, "A Traveller, Rugby," in the Working Man, will you kindly allow an old railway servant to make a few remarks? Your correspondent says that in the course of his travels he has often heard complaints from railway servants, porters, and platelayers as to their long hours of duty and little pay. I have no doubt he has, and am much obliged to him for calling your attention to the fact, as in so doing he has, thanks to your paper, opened a channel through which railway servants may now make their grievances known to the public, who hitherto have looked upon them as a well-to-do and well-cared-for body of men. But this is not so—far from it—as I think I can very readily show; and, in order so to do, will first commence with porters, who are paid at the rate of 17s. 6d. per week of seven days—for, as you are doubtless aware, they have to work on Sundays, for which they get nothing extra, so that their actual pay is 2s. 6d. per day, which is the same as, if not less than, is paid to a bricklayer's Irish labourer. But this is not all. The latter, if he works an hour or two over what is called a day, is paid for it. Not so the railway porter, who very frequently works fourteen or fifteen, but gets nothing for it. And here I would say, it is in consequence of the Company having refused to pay the men their overtime which causes them to feel so dissatisfied; and the late strike on the Lancashire and Yorkshire Railway was the result of that Company compelling their men to work overtime and refusing to pay them for it. Surely, sir, this is a piece of injustice—to compel a man to work, and then refuse to pay him. Where is the Englishman who will submit to it? Surely, sir, to be compelled to work on the Sabbath is hard enough to endure. Nearly all other classes of British workmen can go home on a Saturday night, and look forward to the coming Sabbath as a day when his toil and labour shall cease, and when he can for once in the week enjoy the comforts and quiet of home, with the opportunity of worshipping that God who, in his all-seeing wisdom and providence, ordered this periodical rest. Not so the railway workman. He must be at his post. The same daily routine awaits him, with but little prospect of a quiet hour or two to devote to his Bible, or any other good book, should he feel ever so inclined to read one.

And now, sir, a word for the poor platelayers, and I have done for the present. They, as a rule, hail from the agricultural districts, under the impression, like many more, that once upon the railway their fortune is made; but some find, to their sorrow, they have jumped out of the frying-pan into the fire. Their average pay, which in this district they receive fortnightly, is 15s. per week. Certainly, if called upon to work on the Sabbath, they are paid extra for it; but surely, sir, 15s. per week is too little for men holding situations of great danger and responsibility, as they do, for we have seen the most disastrous sacrifices of life and property the result of carelessness on the part of platelayers: but can it be wondered at when Railway Companies pay them so badly?

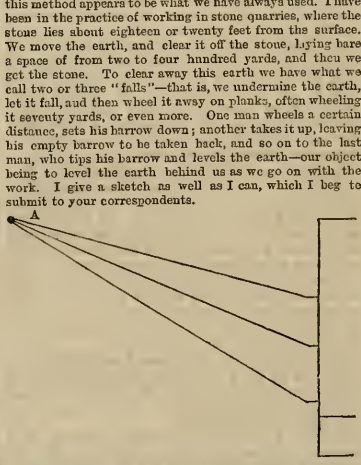
I could say very much more, but am afraid to trespass too far on your space for correspondence; but if you will kindly give this a place in your paper, you will confer a great favour on, yours very respectfully,

An Old Railway Servant.

LESSONS IN MECHANICS.

To the Editor of the Working Man.

Sir,—In No. 12 of the Working Man, Professor Haughton speaks of a method of shifting earth which he describes as being the most wasteful method that could be adopted, and this method appears to be what we have always used. I have been in the practice of working in stone quarries, where the stone lies about eighteen or twenty feet from the surface. We move the earth, and clear it off the stone, lying bare a space of from two to four hundred yards, and then we get the stone. To clear away this earth we have what we call two or three "falls"—that is, we undermine the earth, let it fall, and then wheel it away on planks, often wheeling it seventy yards, or even more. One man wheels a certain distance, sets his barrow down; another takes it up, leaving his empty barrow to be taken back, and so on to the last man, who tips his barrow and levels the earth—our object being to level the earth behind us as we go on with the work. I give a sketch as well as I can, which I beg to submit to your correspondents.



Wheeling here is very hard work indeed, particularly from the last fall, and we should be grateful to any one who can point out a better method of doing it, also what machinery would be required, and about the cost, as this with us is a material point. The first and second falls are wheeled away on planks supported by upright poles—what we call "hollow runs"—and to unpractised hands is dangerous. The last is wheeled on planks laid on the ground.—Yours, &c., A Working Man.

[In reply to the foregoing letter, Professor Haughton states: "I cannot understand why the point *A* is so high, unless there be special circumstances in the case, as in all quarries that I am acquainted with the bearing can readily be tipped into some lower ground, often in the older parts of the quarry. The lift from the lowest run is very heavy, but without seeing the ground it would be impossible to suggest a remedy. If the "box-lift" could be applied, it would save the unnecessary carrying of barrows and men to and fro."]

TO CORRESPONDENTS.

A Workman from the Banks of the Isis, S. G., Work-a-Day, and others.—We do not intend to resume the discussion on the Educational Franchise, enough having been already stated on both sides of the question.

An Intending Competitor.—The Essays will be adjudicated upon according to their literary merits. The manner in which the subjects should be treated is optional with the writers.

Student.—On the authority of Prof. H. D. Rogers, the Illinois coal field is stated to contain 1,277,500,000,000 tons. The Pennsylvania coal field contains 316,400,000,000 tons. All the coal fields of North America, 4,000,000,000,000 tons. The coal fields of Great Britain contain 190,000,000,000 tons. The Illinois coal fields, then, contain four times as much coal as those of Pennsylvania; nearly one-third as much as all those of North America; and over six times as much as all the coal fields of Great Britain.

Apprentice.—Indentures do not usually contain a clause that the apprentice shall not receive any wages during absence through illness. As it was so in your case however, you must, of course, abide by the agreement. Overtime was expressly contemplated and arranged for in your indenture; and you must, therefore, comply with the master's request to work overtime, provided such extra work is not of unreasonable amount, and beyond your health and strength.

Dublin.—The Prize Essay competition is not confined to England, but is open to the whole of the United Kingdom.

The Permissive Bill.—We have received several communications on this subject, but their great length forbids our inserting them.

W. Wills.—Thanks for your letter. The subject is under consideration.

Inquirer.—The chronograph, which has now come to be regarded as the great authority in all matters where it is essential to obtain the rate of speed with perfect accuracy, consists of an ordinary quick train lever movement, on a scale sufficiently large to carry the hands for an eight-inch dial, and with the addition of a long seconds hand, which traverses the dial, instead of being, as usual, just above the figure VI. The peculiarity of the chronograph consists in this seconds hand and the mechanism connected with it. The hand itself is double, or formed of two distinct hands, one lying over the other. The lower one, at its extreme end, is furnished with a small cup or reservoir, with a minute orifice at the bottom. The corresponding extremity of the upper hand is bent over, so as to rest exactly over this puncture, and the reservoir, having been filled with ink of a thickness between ordinary writing fluid and printer's ink, the chronograph is ready for action. The operator, who holds tightly grasped in his hand a stout string connected with the mechanism peculiar to this instrument, keeps a steady look-out for the fall of the starter's flag. Simultaneously, therefore, with the start of the race, the string he holds is pulled by him, and at the same moment the upper hand dips down through the reservoir in the lower, and leaves a little dot or speck of ink upon the dial. This is repeated as the horses pass the winning-post, so that a lasting and indisputable record is afforded by the dots on the dial of the time—exact to the tenth of a second—which is occupied in running the race.

Shirley Brooks.—1. The diameter of the completed Atlantic cable is 1¼ inches: it was covered outside with wire. 2. The mother's refusal in no way weakens her claim.

J. Sondy.—We cannot obtain the information you desire, except by the loss of half a day's time.

J. R. Hitchen.—Thoroughly scour the utensils, finishing with a solution composed of 1 lb. of chloride of zinc, and 13½ oz. of sal ammoniac dissolved in 3 quarts of water, more or less. Melt in an iron crucible (with a flux composed of 1 oz. of borax and 2¾ oz. of powdered glass) 5½ lb. of tin, 5 oz. of iron turnings or wire heated red hot, and 6 oz. of pure nickel, stirring with an iron rod until thoroughly incorporated. This is poured into the utensil, and a uniform surface secured by the application of the soldering iron when necessary. For ordinary purposes an alloy of tin with from one-tenth to one-fourth its weight of lead will answer.

Jolly Blacksmith.—In the cases you mention, the blowpipe is substituted for the furnace.

Acton, W.—The drying oils are linseed, hempseed, and walnut. In *drying*, as it is called, or more properly, oxidising, they become converted into varnishes.

Mechanician.—It is very difficult to ascertain if a foreign invention has been patented in England, as the patents are seldom taken out in the inventor's name, but in that of the agent's. The inventor's address is, Paris Plaisance, 6, Rue Lebouis, Paris.

S. N.—Part of the National Debt consists of annuities, payable for terms of years, to the amount of £1,358,431. Among them are annuities amounting to £585,740, which will expire in April next; annuities amounting to £680,341, which will expire in April, 1885; and the Red Sea Telegraph Company's annuity of £36,000, expiring in 1908. Some annuities have much longer to run; the annuitant is probably not yet born who will receive the £9 9s. 6d. which the State has undertaken to pay to somebody on the 5th of April, 1953.

Vulcan.—Prof. Hodgkinson has shown that strains, however feeble, if long applied, produced some permanent elongation or contraction in bars of iron.

Paperlap.—The preamble of what is known as the "Permissive Bill" sets forth that "Whereas the common sale of intoxicating liquors is a fruitful source of crime, immorality, pauperism, disease, insanity, and premature death, whereby not only the individuals who give way to drinking habits are plunged into misery, but grievous wrong is done to the persons and property of Her Majesty's subjects at large, and the public rates and taxes are greatly augmented; and whereas it is right and expedient to confer upon the ratepayers of cities, boroughs, parishes, and townships, the power to prohibit such common sale as aforesaid.—Be it therefore enacted," &c. The Bill itself provides that, on application of any district, the votes of the ratepayers shall be taken as to the propriety of adopting the provisions of the Act; but that a majority of at least two-thirds of the votes taken shall be necessary in order to decide that question in the affirmative.

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1000	43	85 2 0	30 1 8	3 5 3
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15	4 6	0 8 11	1 2 4	2 4 7
20	5 1	0 10 1	1 5 3	2 10 5
25	5 8	0 11 4	1 8 4	2 16 8
30	6 6	0 13 0	1 12 6	3 5 0
35	7 6	0 15 0	1 17 6	3 15 0
40	8 9	0 17 6	2 3 9	4 7 6
45	10 5	1 0 9	2 11 11	5 3 9
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Instead of spending years in a workshop or a warehouse, and then going into "the office," as was customary when apprenticeships were more in vogue, a youth now tries to save time to himself and trouble to his employers by remaining longer at school; but he also hopes that his services will sooner become valuable, and a salary be sooner obtained. Of course, he is liable to disappointment, and his friends to loss; yet neither Parents nor Employers can justly infer, as some have attempted to do, that instruction is nearly useless, and schooling unprofitable: rather should both correct mistakes made in the kind of information that has been sought, or the range to which it has been limited. The best educated youths are sure to be preferred, ultimately: competition is their security.

Similar complaints were heard long ago upon the Continent; hence the establishment of places like the public Trade School of Leipsic. Having witnessed the working of that Institution, and kindred ones, during a residence of several years abroad, I opened a Private School in 1852 at Peckham, near London, "for first-class business pursuits." Besides instruction in our mother tongue, in writing and accounts, and more than common attention to modern languages, *Object Lessons* are given here by Chemists, Geologists, Botanists, and others, on the nature and use of many raw materials;* *Historical Lessons* on the origin and progress of particular branches of national industry; with *Special Lessons* on some of the applications of science, on remarkable inventions, on trade marts and trade routes—on *Real Knowledge*, in short, of interest to the young, and valuable in a counting-house, though seldom obtained beforehand.

Habits of order, punctuality, and dispatch are carefully encouraged, or, if necessary, enforced.

The School has been so far successful that for seven years past there have never been in it on an average fewer than 150 boys, day pupils and boarders—last year there were 200. Among them have been Dutch, French, German, Spanish, Italian, North and South American, East and West Indian, African, and Australian boys, and some from nearly all parts of the United Kingdom.

The pupils are classified, according to age and capacity, into three distinct departments—the Preparatory, the Middle, and the Upper. Sons of the opulent, from this latter, have been sent by their relatives into large establishments, where they have uniformly given satisfaction; but others, equally well educated, have had to wait for employment, through want of necessary introductions.

On behalf of such youths, and for the convenience of employers also, allow me to ask the favour of an inspection of the School. The visits of strangers, particularly of foreigners, are always welcome.

In May, 1863, one certificate of honour and two of merit were given to my Pupils at the Evening Classes, King's College, for a knowledge of the principles of commerce. The highest distinctions for Drawings and Models have been awarded to Students of Art whose training began here.

I have the honour to be, Gentlemen, faithfully yours,

JOHN YEATS, LL.D.

Peckham, London, S.E.

* The School Collection, consisting of hundreds of specimens, was formed by P. L. Simmonds, Esq., Editor of the *Technologist*, &c. [25

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A Weekly Record of Social and Industrial Progress.

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[REGISTERED FOR TRANSMISSION ABROAD.

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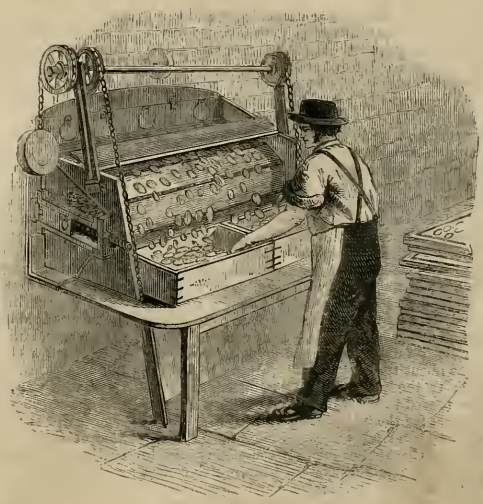
MACHINE FOR CUTTING BISCUITS.

MIXING MACHINE.



TRAVELLING OVEN DISCHARGING BISCUITS.

Biscuit-making at Reading.

Few people have an idea of the extent to which biscuit-making is carried on in the pleasant town of Reading, or dream of the elaborate machinery and number of people employed in the production of those delicate little cates so familiar to the palates of all.

By permission of Messrs. Huntley and Palmer, we are enabled this week to give sketches and descriptions of the manufacture, as practised in their establishment. Upon entering the vast factory (which covers about two acres of ground), one of the first matters to arrest attention is the number of glittering machines at work in all directions; another, the exceeding cleanliness of the entire place, and of the multitude of people—men and boys—employed therein. The workmen look respectable, healthy, and wholesome; and the scene presents a striking contrast, if general report be true, to the bread-bakeries of the metropolis. At no stage of the manufacture does the material employed look other than sweet and tempting, and it is touched by the hands as little as possible—machinery being employed whenever practicable. All flour, wherever procured, is carefully re-dressed in the factory, the butter re-washed, and every precaution taken to ensure the most perfect condition of the various materials which enter into the composition of the different kinds of biscuit.

When these preliminary operations are concluded, a just proportion of each ingredient required for the immediate purpose is weighed and taken to the mixing-pans. The pan shown in our engraving is of iron, circular, and revolves horizontally. Inside this, an upright, heavy, polished iron roller revolves; and a blade of iron, fixed to a movable bar which runs over the pan, assists also in the mixing. The butter, eggs, &c., are conveyed to the man at the mixer, who pours them into the pan, and then, from a long bag or hopper hanging from the ceiling, he shakes out the proper quantity of flour, which is weighed and passed in from a room overhead. In a very short space of time the contents are kneaded by the action of the pan and heavy roller into a stiff paste. In one pan Queen's biscuits are being mixed, at another place macaroons, at a third gingerbread-nuts, and so on. Golden syrup is extensively used in the preparation of paste for gingerbread-nuts; and this, like all the other materials, is carefully prepared beforehand and strained through wire-gauze.

In addition to the mixing-*pans*, mixing-*drums* are used. These are large, cylindrical, drum-like machines of iron, fitted inside with sharp-edged revolving iron arms, which, when set in motion, quickly knead together the paste, and, by their peculiar action when the "drum" is opened, turn out all the dough in lumps into a pan placed for its reception.

From the mixing-pan or drum the thoroughly-mixed paste is taken in great lumps to the "rollers," who pass it between a couple of polished iron rolls, from which it emerges in the form of a thick, long, and immense pie-crust. This is folded into a mass about eight inches thick, and re-passed several times between the rolls; then cut up into large pieces, placed in a wooden trough or pan, and taken to another and closer fitting pair, through which it is repeatedly passed, preparatory to undergoing the operation of the cutting or stamping machine.

Attention to our large illustration will facilitate the reader's comprehension of the action of one kind of cutting-machine (the cylinder) used in the establishment under our notice. A man standing at the end of a very long machine, has the paste brought to him rolled out to a certain extent—say an inch in thickness. Just before him are a pair of polished steel rolls, between which he places one edge of the dough, which is immediately drawn in, and the whole piece drawn through and made thinner. As it passes through the rolls it falls upon an endless band of strong canvas about two feet in width, which brings the dough to the place whence it started, and it is again passed through and rolled out to the proper thickness for the intended biscuit. When passing along the band for the last time, the end of the now long sheet of exquisitely compounded paste is lifted upon another endless band, which carries it away along the machine—past a man who stands to take care that the unbroken sheet (twenty to thirty feet in length) is travelling properly—and between another pair of rolls in front of the machine, one of which has a great number of little cutters upon its surface. At one side, standing in a hole in the floor, will be seen a boy, who is occupied in placing shallow iron pans upon another band, which carries them under the cutting-cylinder, where the biscuits, now cut into the required shape, fall by an orderly arrangement into the passing pans, and are carried to the front; whilst the spare paste, perforated like a piece of delicate network, is carried backward along the middle of the machine to a proper receptacle, and taken thence to be re-moulded. As the laden pans come to the front, they are lifted away and carried to a table, where they are carefully looked over, and all imperfect ones thrown aside.

The trough seen immediately in the foreground is for the reception of those biscuits which are cut from the ends of the long sheet, and do not fall into the pans, or for any which may have fallen over the sides, &c. These are taken away, and made up again into the lump, and those in the pans are now ready for baking.

There is another machine employed here, by which the biscuits are *stamped* out of the sheet, instead of cut by the cylinder. In this the dough is carried forward by a similar arrangement of endless bands, and pressed under a stamp working up and down perpendicularly, and having upon its under-face a series of cutters. We were shown a pair of miniature rolls, about four inches in diameter and a few inches in length, which were, probably, the originators of all the elaborate cutting-machinery now used in biscuit factories. This little apparatus, which could be carried away in one hand, is still in use, and was employed, when we saw it, in the making of "Long Jamaica." The upper roll has the name "Huntley" upon it, and the lower one is grooved. Long strips of dough are passed between these, receiving, in passing, the shape and ornamentation required, and the strips are then cut up with a knife, and the separated biscuits placed in a tray.

For certain kinds of biscuits, the paste, after being mixed, is not rolled into sheets. In making "Queen's," for instance, the composition is brought to the workman in a mass, and he then proceeds to mould them in a very simple manner. A slightly-flattened cylinder lies upon the table before him, hollow, open at one end, and at the other perforated with a number of small holes. The mixture is placed inside by the open end, and forced through the holes at the other, in long, jagged, snake-like lengths, which are afterwards cut up by boys, twisted into various shapes, and placed on tins. The little fellows who twist up these ornamental biscuits are paid by piece-work.

"Macaroons" are made in a somewhat similar way. Men fill little tin cylinders, about nine inches long, with material, then insert a plug of wood at one end, and force out the paste through a hole at the other, and cut off the bits with a knife. These bits fall upon wafer-paper in trays, boys place on the almonds, and they are ready for the oven.

"Cracknels" are brought from the cutting-machine, and thrown into a large pan filled with water, kept continually at a steady boil by means of steam, then fished out with a wire ladle, placed in cold water, afterwards dried on cloths, placed on tins, and baked.

"Ginger-wafers" are rolled out very thinly by hand. So thin, indeed, is the paste, and so exquisitely fine the texture, that manuscript can be distinctly read through it.

The baking-ovens are from sixteen to forty feet in length, of various kinds, and heated underneath, to avoid dust. The one we have selected for illustration is what is termed a "travelling-oven," the floor of which is composed of iron plates jointed together, and forming an endless band, which passes over rollers at each end. This band is continually in motion, and the biscuits being placed in the mouth of the oven, are steadily carried onward, thoroughly baked during the passage, and discharged at the other end into wooden trays or boxes, as shown in our sketch. In some cases they pass through upon the iron trays, which are lifted out upon their arrival at the discharging aperture. The speed at which they travel is regulated according to the thickness of the material, heat of the oven, and the particular shade of colour required. Some of the very thin wafer biscuits pass through in about five minutes, whilst other kinds vary from that time to a quarter of an hour.

After being baked, they are taken in boxes, by means of a "lift," to an upper room—each box containing a tin label, placed there by the baker, to denote the particular oven from which the biscuits are brought; next, weighed and sorted. Every biscuit which has become either spoiled or burnt, is picked out and thrown aside, to be afterwards broken and sold at a reduced price, and no damaged ones are allowed to leave the establishment in a whole state. When sorted, they are placed in store casks, with an accompanying ticket, which denotes the date, thus preventing the possibility of any stale goods being unwittingly sent out.

We next go into a series of rooms where numbers of people are continually employed in packing the tin cases so well known to every one. Thousands of tins are piled about, and at various tables the process of packing is neatly carried on. Into the "best mixed" tins as many as eighteen sorts are placed, each kind carefully proportioned, and the "dessert" tins contain seventeen varieties. Those packages intended for exportation are soldered up.

To show the amount of business transacted, we may state that there are anything but insignificant carpenters', coopers', blacksmiths', and fitters' shops attached to the factory, and devoted to its sole use. Altogether, the firm employs over 800 people upon the premises, whose comfort and improvement are by no means lost sight of. They have, attached to the establishment, a free library, a reading-room (provided with a variety of papers, a piano, &c.), to which all are admitted, if over sixteen years of age, upon payment of one penny per week; and at certain seasons some very pleasant *soirées* are got up by the members. There are also a dinner-room, a play-ground for the boys, and a sick-fund, managed upon most equitable principles.

The members of the firm are proud of their men, and speak of them as being sober, intelligent, and thrifty—a credit to their class.

Saturday Evening in Victoria Park.

Living as I do in another quarter of suburban London, and seldom having occasion to visit the East End, it is not surprising that I should have shared the ignorance so prevalent among many of the peculiarities of this lately much-talked-of locality. Of course, I knew generally that about twenty-two or twenty-three years ago a large tract of land was laid out as a park; that some old houses were cleared away to make approaches; that there was a sheet of water, and that Miss Burdett Coutts had given a sum of money to erect a drinking-fountain. Altogether I had a vague impression that the park was a large place where the East End and the East End's wives and families enjoyed themselves; and when a friend suggested one fine Saturday afternoon that we should go and have a look at the park, I assented, under the impression that I should witness scenes bearing some resemblance to those I had seen when Greenwich Fair was in all its glory, or at Battersea Fields, before that choice locality was made respectable.

"I don't suppose," I said, "I shall see anything particularly novel. Everybody knows all about low life now-a-days. Casual wards, and Ratcliffe Highway, and Petticoat Lane, and Ragamuffin Alley (that's the name, isn't it?), and everything of that sort has been almost done to death by this time. I know all about the sixteen people who lived in one room, and the German sugar-bakers in Whitechapel, and the thieves' kitchens, and the sailors' amusements in the Highway, and the Chinese opium-eaters, and Bluegate Fields, and the slop tailors and shirt-makers, and, in fact, I am altogether—thanks to special reporters, and graphic writers, and 'Readings by Moonlight,' and amateur paupers and detectives—'up' to the East End. But, however, let us go to Victoria Park by all means. The day is fine, and I have nothing particular to do, and may as well see donkey-riding, and three sticks a penny, and kiss in the ring, and costermongers dancing polkas with costermongeresses, and drunken dock-labourers fighting or setting their bull-terriers to fight, as do anything else; for that is about what we shall see, I suppose, isn't it?"

"I suppose so," said my companion. "Some fellows talk about flower-beds, and shrubs, and

winding paths, and all that sort of thing, and say the people go there by thousands to enjoy themselves, and are clean and well dressed, and behave like ladies and gentlemen; that no damage is done; that there is no coarseness or impropriety of conduct, and that, in fact, if you were to go to sleep all the way there, you might wake up and think you were in the Horticultural Society's Gardens at South Kensington or the Regent's Park, or any other respectable place; but that must be nonsense, you know."

"Of course it must," I said, as we stepped into the railway station at Fenchurch Street. "The idea's absurd. I dare say the East-Enders are a good sort of people in their way—rough diamonds, perhaps, but I should think the roughness must be something remarkable. We won't go first class; the second class will give us a better opportunity of witnessing the manners and customs of the East-Enders. Two returns to Victoria Park, if you please."

Very crowded and very dingy is the Fenchurch Street station of the London and Blackwall Railway. There are numerous platforms, and when the train arrives the passengers jump out at one side to make room for others for the return journey, who crowd in from the other platform. The carriages are never empty. One of the first ideas which struck me was, that there appeared to be among the officials of the railway several individuals possessing extraordinary taste in dress and remarkable musical powers. They had black faces and horsehair wigs, battered white hats and red striped trousers, and shirt collars a foot square seemed to be popular, and the banjo, accordion, concertina, and "eddicated bellows" generally, favourite instruments. One of these strange personages stepped lightly into the compartment where we were seated, and immediately began to sing something about a "corn-brake," and "marching on for Uncle Sam." My fellow-passengers appeared to be pleased with the performance, and grinned expressively when the nigger announced that the song was "number two in the collection, and the next one is anoder." I had anticipated as much, and did my best to be highly amused; and certainly the song, which appeared to consist of a short yell and the repetition of the word "tapioca," was, all things considered, quite as funny as I could reasonably expect.

"Not a bad idea," suggested my companion, "and other companies might take the hint. We might as well listen to nigger vocalists, when we are kept for half an hour at a time waiting at junctions, as to the whistle of engines, and the amiable conversation of guards and porters."

"Pass round the saucer, if you please, gentlemen," said the vocalist insinuatingly—he called his old hat a saucer—and then we found that he was not employed by the railway company at all, but was one of many, "plain and coloured," who ride up and down the line all day, and make a tolerably good living from the halfpence subscribed.

"East End all over," said my friend. "Catch them standing that sort of thing on the Great Western!"

In about a quarter of an hour we had reached Victoria Park station; and in another minute or two were in the park itself. Now, what *did* we see there? I will make a clean breast of it, and —West-Ender and "swell" as I am—will tell you that I was altogether wrong; that the park is a charming spot; that the visitors behaved exactly like ladies and gentlemen; and that I never saw so much real, healthy, honest, decorous enjoyment in my life as I did in the two hours we were strolling about in the park. Young and old were enjoying themselves thoroughly. The children were running about, and the merry laughter which accompanied their games was as musical as the songs of the birds which every now and then burst out from the plantations. There is a noble piece of water, with the depth marked, so as to ensure the safety of the bathers; and a whole fleet of model yachts, some of them eight or nine feet high, with polished hulls and scrupulously accurate rigging, were afloat, carried by the gentle currents of the lake, and dipping their slender masts to the light breezes that swept across the park, laden with the scent of the gay flowers and lilac blossoms bordering the water. How the children watched the white sails and the flowing pendants; and how knowingly the yacht-owners criticised the rig and the gaff-topsails of the rival cutters!

Winding paths, made beautiful by shrubs and many-coloured flowers, lead from the lake to the open park. There is the drinking fountain given by Miss Coutts—a noble erection, by far the most tasteful the metropolis can boast. There, too, are wide lawns, where the children play, while their parents sit in gossiping groups; and in the less crowded parts the football flies, chased by the active throngs of players; and kites of all shapes and sizes are overhead. Farther on is the cricket ground, where not only the East-Enders proper, but hundreds of young men engaged in the City houses, find scope enough for exercise. There are red caps and blue caps, and flannel trousers, and leggings; and loud cries of "Now, then, run!" and "Thank you!" resound. Balls speed past us on the ground, pursued by light-footed long-fields, or spin over our heads, directed with sure aim to the wickets. There are cricketers of all degrees; mighty batters and bowlers, and juvenile aspirants to cricketing fame. But the best thing of all is, that everybody seems quite happy. And when, on the verge of the park, we reach, guided by volleys and rising smoke, the spot where the 2nd Tower Hamlets Rifle Corps are going through their drill, we feel that England ought to be proud of the rising manhood of the country, and that means of obtaining fresh air and exercise are essential to its proper development.

Before we passed the lodge, we took a last look at the scene we were quitting. The sun was setting brilliantly, touching the picturesque massed foliage with gold. The old tower of Hackney Church looked venerable in the rich light of the dying day. Far away were the echoes of the great city; and before us the sward was dotted with a thousand animated figures, giving the crowning charm—that of vigorous life—to the animated scene.

The Foresters.

"Every man for every man—himself included."

Forestry! Odd Fellowship! Here are two grand institutions, vying with each other for the best of all pre-eminence—the practice of the most intelligent philanthropy, concord, and benevolence —to secure the greatest happiness of the greatest number—in a word, the universal benefit of mankind. They are both of similar import in the vast and universal want of poor human nature—good-fellowship; the "shoulder to shoulder" without which man is but a poor worm, to be trampled under foot, or to be devoured up by the prey-birds of want and poverty.

We must be grateful and acknowledge that much has been done of late years to improve the condition of the working classes, and the working man of the present generation enjoys many advantages that were far beyond the reach of his less fortunate brethren of former times. Just let us consider. The *tommy-shop* system of robbery has been abolished, and the payment of workmen's wages in public-houses rendered illegal.

Government enactments and inspections have compelled those who employ men in dangerous occupations to take proper precautions for insuring the safety of those employed, and the law now provides against the over-working of children of tender years.

Mechanics' and other institutions of a similar nature have been established; beautiful parks have been thrown open to the city-pent communities, and a variety of other means have been taken with the view of elevating the intellectual faculties and social position of the working man.

He has now an advocate of his rights—his honest and honourable claims—and, moreover, the record, the *monument* of his national *productiveness and skill*—we mean his *journal*—ever ready to give him a helping hand if he needs it, and ever watchful of his interests.

All these magnificent results are an honour to the age we live in, and in accordance with the general advance and progress of humanity as ordained by Providence.

But another striking fact arrests our attention, as still more emphatically demonstrating the advance—the development of our common human nature. It is this: the working man has begun to assert himself—to rise in the might of his own moral and intellectual powers above the grovelling and groping thing of former days, and to stand forth an embodiment of the moral of the fable, "If thou wouldst have me aid thee, aid thyself; put thy shoulder to the wheel."

Yes! A wise legislature has suppressed many of the abuses to which the working classes were formerly subjected. It is well! Private philanthropy and public benevolence have striven, and with great success, to improve their mental and physical condition. Again, it is well! It is "good!" But now the working classes are fully and wisely convinced that it is principally to *themselves* that they must trust if they wish permanently to rise in the social scale, or to be prepared—as far as their circumstances make it possible—to meet those fluctuations in the affairs of our common humanity, against which no human foresight can always forefend us. Hence Forestry.

Friendly societies—the distinguishing feature of modern times—form a subject of the highest interest in the study of the social state. They commend themselves equally to the professional statesman or politician, and to the philosopher who seeks, by his theories, to ameliorate the condition of mankind, whilst the object of the former may be only "to make ends meet" in the governmental point of view, or with respect to the tenure of office. More than *five millions* of the working and middle classes of this country subscribe to a fund for mutual support during the unproductive days of illness, old age, or when out of work. In other words, probably more than one-half of the adult male population has, by thrift and slight personal self-denial, secured itself from the doom of the pauper or the inmate of the workhouse and union. Five millions, at least, of our countrymen have thus combined for mutual assistance in the event of sickness, calamity, and death. It is this genuine appeal to *principle* that we want for the regeneration of society and the safety of nations, instead of regiments of soldiers and multitudes of policemen. Man is not necessarily the brute which we must infer him to be from the frightful shackles and penalties which have been invented and deemed indispensable to keep him in social order and constitutional subjection. There is *mind* in him, which can look forward; there is *heart* in him, that can feel a generous impulse when duly roused; there is in him a *conscience*, which discriminates between good and evil; there is, finally, a strong instinct of upright *self-interest*, to which we rarely appeal in vain, if we are sincere, honest, and honourable in our proposals.

Such, we take it, must be the cause of the wonderful expansion of Forestry, the nature and rules of which we propose to consider in their general working and application.

It appears from existing records that the Order of Foresters was founded at Knaresborough Castle, October 29th, 1745, under the title of "Royal Foresters," by which name it continued to be called until, at a grand convention of delegates held at Rochdale, in August, 1834, it was changed, and is now known as the *Ancient Order of Foresters*.

Steadily advancing in its mission of good, the Order may well appeal to its increasing numbers as a proof of its universal appreciation. In 1845 the number of districts or branches of the Order was 146; last year it was 225; each succeeding year since 1845, showing either a permanence or that gradual increase which is the best security for permanence, because it shows no factitious excitement, which commonly evaporates as quickly as it arises.

In the same period the number of Courts, or divisions, of the Order, has increased from 1,456 to 3,493, the average number of members in each Court having also increased in the same period from 45 to 86. In 1853 the number of honorary members was 1,090; in 1865 it was 5,886; finally, the number of financial members, or such as receive aid from the Order, was, in 1845, only 65,909, whereas last year it was 301,077—considerably over a quarter of a million of men; and striking as is this great strength of the Order, it becomes still more significant from the fact that its increase last year was no less than 23,331.

These astonishing figures tell of good management, and speak plainly of reciprocal advantages secured by this institution in its mission of good to mankind; for the Order of Foresters is established not only in the United Kingdom, but in the colonies—New South Wales, New Zealand, South Africa, South Australia, Tasmania, Victoria, America, and the West-Indies.

In order adequately to account for this great accomplishment in all its bearings, we must con-

sider a few points of which we are daily reminded. A counterpoise is needed, in a well-regulated community, against the undue influence of wealth or mere money. Then, if wealth be made a tyranny, let every man secure himself from its undue influence and oppression by providing for himself in all the contingencies of life, by some such combination as we are now considering. Money can be effectively fought by money only; and the small but real "independence" of the working man may, together with his industry and skill, ultimately alter for the better the relations between the employer and employed throughout society; and these friendly societies, properly organised and properly supported, will be the means of bringing about this desirable consummation. And what will be—what is already the grand result of this mighty cause in operation? Why, the great interest or stake in the country which the working man possesses, concerning which the Chancellor of the Exchequer, in a recent debate, spoke in terms which leave us nothing to add, excepting to quote the *facts and figures* of another speaker, Mr. Layard, who stated that the society called the London Unity had £200,000 sterling of property, and 200,000 members; the Manchester Unity Independent Order of Odd Fellows had £3,000,000 sterling of property, and 387,990 members; and the Foresters had nearly a *million sterling* of property, and 301,000 members, at the commencement of the present year.

These facts and figures indicate the existence of a mighty power in the working classes, and it only remains for a wise legislature to direct that power, and the intelligence and true respectability by which it is accompanied, to the welfare of the state and country.

Henceforth the voice of the working classes must be listened to; their vote must be taken on every great national question. The best effect of their immense influence on public questions has been recently demonstrated, as admitted by the Government, through Mr. Layard, in Parliament—"All the working classes of the country, with the exception of those of Liverpool, supported the Government in their determination not to go to war with the United States."

POETRY AND THE WORKING MAN.

By poetry, we do not mean, simply, verse or rhyme. In a hundred thousand verses there might be not one thought of poetry. Neither does poetry mean something which is fanciful and unreal. By poetry we mean invisible truth, as distinct from that which is visible. Not *every* invisible truth; not, for example, the invisible truths which are perceivable by the understanding, as mathematics, but the invisible realities which are recognised by the imagination. We will take an illustration. You look at this England, intersected with its railways, and say it is becoming a dull, prosaic thing. The sentimentalist will tell you the railway has broken up all the poetry of the scene, because it has run through our pleasure grounds, sadly cut up our old retreats and solitudes, and destroyed all classical associations. So it may have done. It has destroyed that which was associated with the poetry of the past; but it has left us the real poetry of the present. Let men look upon that railroad, and one will see nothing but the machine that conveys the travellers to their destination. This is a truth, but only a visible one. The engineer comes and sees in it another class of truths. It suggests to his mind the idea of broad and narrow gauge; he talks of gradients, &c. Another truth: that which is appreciable by the understanding. Then let the poet come, with that eye of his "glancing from heaven to earth, from earth to heaven," and his imagination creates another class of truths; the suggested meaning of it to him is the triumph of mind over matter, the gradual annihilation of time and space. He sees in these railroads stretched throughout the country the approaching times of peace and human union; and so he bursts out into his high prophetic song of the time—

"When the war drum throbs no more, and the battle flags are furled,
In the parliament of man, the federation of the world."

All this is truth; neither seen, nor reasoned truth, but truth to the imagination; truth just as real in its way as the others are in theirs. And this is poetry. For this reason is poetry a thing needful for the working man. His whole life, if he could be taught to feel it, is full of deep, true poetry. The poet teaches him by suggestive inspiration the hidden meaning of common things, transfiguring life, as it were, by shedding a glory on it; and if you will force the poor man to see nothing but the wretched reality that is around him, if you will not let his mind be enlightened by the invisible truth of things, if you will not let him learn from the master-thinkers of the past how, in his work, in his smoky cabin, in his home affections, there is a deep significance concealed, connecting him, when he once has felt it, with the highest truths of the invisible world, you condemn the worker to a desolate lot indeed.—*Robertson's Lectures.*

*Why are not Working Men's Clubs and Institutes more Successful?**

The following correspondence between Mr. B——, honorary treasurer of the F—— Working Men's Club and Institute, and the Rev. H. Solly, will be found interesting to members and promoters of these useful institutions:—

"Working Men's Club, F——,
10th May, 1866.

"Dear Sir,—At a recent meeting of our committee, I was requested to ask your advice, with a view to the amendment of our position. I enclose you what papers I can, to show you our former condition as compared to what we are now. Our members are now only fifty, and they do not all seem to appreciate the value of the Club.

"Of course the subscriptions will not pay expenses, and honorary members tire of supporting an institution for which the working men care so little. We get very few artisans; there are three builders' establishments, one cabinet maker, two printers, one coachmaker, and one painter, employing on an average eight or ten hands, of whom we have scarcely one on our books. But perhaps our principal difficulty is, that the vicar is not with us, and he, of course, influences many of the men.

"Can you, from these few rough notes, form any idea as to our best course, and will you kindly advise us, if you can?

"Apologising for giving you so much trouble, I am, sir, yours faithfully, E. B——."

"May 15, 1866.

"My dear Sir,—Having carefully considered your letter, let me first express earnest sympathy with yourself and the other friends, both working men and gentlemen, who are striving to keep up the Working Men's Club in your town.

"Secondly, let me draw your attention to your sixth rule, 'That any working man or mechanic (not under sixteen years of age) may become a member of the Club,' &c. Now, as I am glad to see by your report that you take in the Working Man, you must have noticed all that has lately been said there upon the admission of youths to these Clubs. Hence, you can be at no loss to understand one of the principal causes of your want of greater success in drawing young men to your Club. You had better get the age for admission raised, as soon as possible, to twenty-two or twenty-three, so as to have it, practically, at least up to twenty-one—but twenty-five would be better still—unless yourself and friends think you can do more good by turning it completely into a Youths' Club and Institute, or unless you can adopt some of the plans mentioned in my papers in the Working Man for providing separate accommodation for the youths.

"Thirdly, In working these Clubs, we must always remember that there are two forces required for their successful management. 1. The energy and interest of the working men themselves, as the rank and file of the army. 2. The zeal and co-operation of persons in a higher class as leaders or helpers, when and where they are wanted. Neither, as a general rule, has proved to be efficient without the other.

"1. To secure the interest of working men in a Club, the first step is usually a public meeting. If you have tried this, or cannot get speakers likely to rouse the working classes, the next, and far more efficient step in any case, is for those men who do care for the Club to talk about it to those who do not—to do this not merely once or twice, but repeatedly, whenever an opportunity offers, again and again, until at last the right moment comes, and a man's friend or shopmate agrees to join the Club for a time, 'just to see how he likes it.' Personal influence, in short, is the great secret of success in this Club movement. Nothing can supply its place for any permanent result.

"But wise or injudicious rules and arrangements, of course, may greatly help or mar that influence: *e. g.*, a rule allowing a member to bring a friend two or three times without payment is of great use; while penny admissions for a single night are generally mischievous, as destroying the Club feeling, and sense of Club privilege. This, also, I adverted to in two or three of the papers in the Working Man (Nos. 8 and 12).

"To draw the attention of the operatives of the town to the advantages of your Club, you would probably do well to circulate a few hundreds of the enclosed paper, 'A Few Words to Working Men about Social Clubs and Institutes,' accompanied by a short statement of what advantages your own Club offers, with the rate of subscription, &c.

"If you could get up an exhibition, bazaar, out-door fête, &c.—anything to draw general attention to the Club—it would, of course, be a considerable help. The great difficulty you and all supporters of these Clubs have to contend against is the apathy of the working men, and the clinging love many of them have for the publican's fire-side. Whatever will rouse their interest and gain their attention, break in upon their habitual routine, and stupid animal indifference, is of much value.

"But especially the working men who have risen above that low, grovelling condition themselves, must make their comrades understand that at the club they can be just as much their own masters, just as independent, and free and easy, as at the public-house, subject only to their own rules and good feeling, even as in a public-house they must be subject to the landlord and public opinion. I often think of that man's remark, quoted elsewhere: 'We have masters, my lord, all day long, and we don't want 'em at night.'

"2. The co-operation of gentlemen in securing the success of the Club is fully advocated in the enclosed paper—'Working Men need and welcome Help from gentlemen,' &c. If you ask men to give up the excitement of tippling and low conversation, you *must* substitute other and better excitement. Persons who can talk in a sociable and interesting way, who can sing, read, and recite, show microscope, telescope, air-pump, describe the human hand and horse's hoof, &c., or bring diagrams, maps, and engravings, may do much to help less educated and privileged folk to enjoy very pleasant evenings without fuddling. In the same way out-door games and athletic sports sometimes receive great stimulus from the participation in them to a moderate extent of genial gentle-folks.

"Query.—Have you availed yourselves of all these modes of making your Club flourish? Above all, have you and your fellow self-sacrificing workers tried to make the working men, generally, enter into the spirit of brotherly kindness and unselfish labour for the good of those working with them in the shop or the field? There is no hope nor help for any Club, except so far as the members will care for one another, and not merely for themselves. There are two or three other points I ought to mention, but am much pressed for time now, and will write further in a day or two. Let me hear from you again, and believe me, with sincere good wishes, very truly yours, Henry Solly."

"150, Strand, W.C., May 18, 1866.

"Dear Sir,—I now add one or two remarks which I had not time to make in my last letter.

"First, with regard to the unfortunate circumstance of your not having the vicar with you. This is, undoubtedly, much to be regretted, both for the sake of his own usefulness and for that of your Club; but if you and your friends will work on in faith and patience, you will, I trust, be able to show him, six months hence, by actual facts, the great good the Club is doing to his parishioners, and then, we would hope, he may become its cordial friend. I have hitherto had no more valuable and friendly supporters among any class than among the clergy of the Church of England.

"Secondly, I see by the report of our visitor last autumn, that out of your six rooms you appropriate three to your housekeeper. This is a large deduction from your working power. It is generally considered that one bedroom and a sort of bar-parlour is all that should be reserved exclusively for the housekeeper or steward. A man and his wife without family would find this quite sufficient, because they are occupied in attending to the members during the evening, and can use the Club coffee-room, if they want more space, during the day. By your present arrangements

* Continued from page 330.

you get no class-rooms, and, as I have often urged in the Working Man and elsewhere, a Club cannot long be maintained unless there is something of an educational character connected with it. Even the recreation department cannot be properly kept up without it. For instance, unless there is an elocution class there will probably be a deficiency in new recitations for the weekly sing-song or 'free-and-easy;' old pieces will be recited or read till the members are tired of them. More than one such Entertainment has died out from this cause, thereby seriously injuring the Club. The same applies to a singing-class; and with regard to the need generally of making the Club more than a mere recreation-shop, and of attaching men to it by higher and stronger ties, let me ask you to refer to the account you will find in the Working Man of my visit to Bolton (No. 12, March 24th). A discussion-class or meeting, again, I have always advocated as of immense value, if well managed, and kept free from theological controversy and party bitterness.

"For the summer months, note what is said in the Working Man for May 19th, at West Bromwich. Can you not get up a weekly meeting for athletic sports, preparatory to a regular festival, and collect money for prizes?

"Finally, if you think that a visit from me would be of any value, I dare say the Council would pay the travelling expenses, for yours was the first Club we established, and we have always felt a special interest in it. —I am, dear sir, very truly yours, Henry Solly."

THE RESOURCES OF BRITISH COLUMBIA.

The special correspondent of the *Toronto Globe* writes as follows: —"In my last I promised some further reasons why these colonies must inevitably take high rank among the colonies of Britain as soon as they are known and understood. I propose now to take a look at the possibility of the future. In my last I briefly described our varied and vast resources, waiting for the hand of man to take and use them. There is, however, one important condition of a people's growth and greatness about which I said nothing; but as it is one which always exerts a most potent influence on the character and prosperity of any people, it must not be overlooked in any estimate of the merits of our country. I refer to our climate. The southern parts of Vancouver's Island and British Columbia are truly healthy and pleasant countries to live in. Cariboo, and the upper country generally, is probably as cold in winter as Canada, but the district from Vancouver's Island to the western foot of the Rocky Mountains, including Victoria, New Westminster, the lower valley and delta of the Frazer, and the southern inland part of British Columbia, has the best climate, beyond all comparison, to be found in British America—alike free from those extremes of cold and heat which give all your eastern people a moderate foretaste of purgatory twice a year. Not so warm as to enervate, nor so cold as to cramp, it is the best climate I have ever known to work with comfort in. Like the English climate, it is wet in winter, and mud and rain are always disagreeable; but I have seen roses in bloom in the open garden on Christmas Day, and pansies, daisies, and mignonette in flower in January. Gardening generally commences in February. The spring is a long season, not short and sudden, as with you; but this gives the farmer plenty of time for his spring work. The temperature is so uniform that, although I have lived here nearly four years, there has not been a night that I have not needed blankets for covering. Thus we have that kind of a climate in which a man may spend the utmost of his strength without exhaustion, and in which sleep exerts its perfect restorative power. It is a climate most favourable to the complete activity of man. In an economical point of view this is an immense advantage. It does not count for much yet, because none of us are yet fairly to work; but when our hills and valleys, our towns and rivers, shall hum with industry, then this five or ten per cent. advantage which our climate will give us will tell vastly on the total results. Moreover, there are good and reasonable grounds for believing that this superior climate will act favourably on the general *physique* of the people that shall be born and brought up here; and to men who contemplate finding a new home, and who think they detect in the length and lankiness of the Yankee or Australian a degeneracy from those 'whose limbs were made in England,' it is, in all seriousness, a subject worthy of grave consideration. I have been thus particular about the climate for a reason. Short-sighted people, who think themselves practical, give to climate a very small degree of consideration, compared with the attention they bestow upon the present chances a country offers for making money. But, in view of our relations to the rest of British America, and to the Pacific Ocean, the question of climate rises to great importance. These colonies are the western 'hand,' as the Maritime Provinces are the eastern 'hand,' of our British American empire. At present its hands are the hands of an infant, but the time will come when they will possess the strength of maturity, and when their western hand will, I hope, have acquired the superior power of the 'right hand.'"

DRINKING-FOUNTAIN IN PICCADILLY.

Drinking-Fountains.

Now that the hot summer weather is fairly setting in, the utility of the numerous drinking-fountains established in different parts of the metropolis becomes strikingly evident. The accompanying illustration represents a well-known fountain at Hyde Park Corner. In a future number we intend giving some account of the drinking-fountain movement.

Busts of American Inventors.—The United States Commissioner of Patents has invited individuals throughout the country to send to the Patent Office busts of authors and inventors, and of all men who were celebrated for mechanical skill and ingenuity. The Commissioner promises to assign appropriate positions in the Museum, but he has only room for 200 busts. The somewhat similar collection at the Patent Office Museum at South Kensington, commenced some years ago by Mr. Woodcroft, contains about 250 portraits, busts, and medallions of celebrated inventors and discoverers.

A Bored Prince.

Conventionalism is not without advantages. It represents an established order of social procedure into which men fall by habit, who have not reflection enough to fall into it by force of sense. Still the thing comes to be overdone when it is rigidly levied upon those whose sense enables them to see a better course open, and who have judgment enough to take it of their own accord. A very notable instance has just occurred in what is called "high life." The Prince of Wales lately attended the Royal Academy dinner. The speeches were dull, not to say prosy. The new president, Sir Francis Grant, talked long, and not in a very happy manner. Every year, as most of our readers may know, the Royal Academicians give a grand dinner, all among their pictures, before the rooms are opened to the public. On these occasions, the most eminent men of the nation are usually present —prelates, princes, noblemen, and statesmen—and they usually make good speeches. Last year Earl Derby made a great speech. This year nobody made a good speech, and Sir Francis Grant made a great many very bad ones. He talked more than all the guests put together. The late president, Sir Charles Eastlake, was a man of cultivated taste, and knew what to say and when to stop. It was proposed to make Mr. William Boxall president, one of the greatest of our portrait painters. He is said to possess the graceful faculty of being able to entertain with pertinence and brevity a high and critical assembly, such as always meets at a Royal Academy dinner. Sir Francis Grant appears not to have this rare attainment. He compared the Prince of Wales to an artist, because he follows the fox hounds, and sometimes gets possession of the brush, and, as artists use the brush, of course the Prince was a professor of the brush. This is an old piece of wit, and clumsy as it is old. It warrants the application to the speaker of a sharp saying of Thomas Carlyle, the new Rector of Edinburgh University, who, when he was told of a pretentious picture maker, he replied, "Ah, he thinks himself a great artist because he uses a big brush." However, Sir Francis Grant is said to possess a cordial, hilarious manner, and no doubt he made his remarks feel a little more lively than they read. Be this as it may, the Prince of Wales was bored, and wanted to go. It is said that it was hinted to Earl Derby to be brief, who was, however, too proud to abridge on compulsion even for a Prince, and actually made a purposely long speech. At length the Prince rose; then the meeting broke up, it being the custom for the chairman to attend on a Royal guest when he rises to depart, and Mr. Disraeli's speech, prepared for delivery, never came off.

The Prince himself made a very good speech. Prince Alfred's was to the purpose, and he spoke gracefully of Maclise's "Death of Nelson," a picture in the gallery this season. But the Prince of Wales ventured to give an opinion of his own on another picture—not known and approved like Maclise's—"Volunteers Firing at a Point." Nothing could be more modest and becoming, or show more good taste and good feeling, than his mention of the late Sir Charles Eastlake: "I cannot forbear offering *my small tribute* to his merits, having always considered him as an old friend, and having, indeed, known him since my childhood. I shall always be ready to do *my little best* to promote the welfare of art and science." The marks of a genuine speech are here.

Complaints have been made through the press that His Royal Highness was wanting in courtesy to the company, and, bored or not bored, he should, as a gentleman, have stayed it all out; and he has been rather sharply reminded that he "owes duties to society," and so forth. It seems very bad taste to be reminding His Royal Highness, as has been done oft of late, that he does not give value for the money he receives. What the nation chooses to give should be given ungrudgingly, and he who receives it should be left in the enjoyment of it, without unhandsome reproach or reminder. Why should the Prince stay in any assembly when he is well tired of it? It must disincline him to go to public meetings when it is made a drudgery to him. The remedy seems to be to relax the conventional rule that breaks up a dinner-party when the Prince departs. There would be more freedom for the Prince if he were allowed to come and go, like any private gentleman, and the meeting proceeded with its business or pleasure afterwards to the end. In cases in which the Prince was interested, he would stay, and his staying would be a real compliment. Now he can pay no compliment of the kind. If he goes, he must stay, or give offence by leaving. We rather like him for leaving. It shows a resolution to act on his own taste, and not to stay in a formal, hollow, insincere way, as though he liked a thing when he did not.

It is quite true that a young man, of high station or low station, should learn to defer to the comfort of others, and should be willing, at inconvenience to himself, to show them deference and respect. This is duty and gracefulness of conduct; but the charm of this consists in its being done voluntarily, and not from conventional coercion. We take it that the Prince is more likely to do it as a personal and spontaneous thing, than otherwise; and we rather regard his behaviour at the Royal Academy dinner as proceeding from an unconventional spirit than from rudeness or thoughtlessness.

On the occasion of the Prince meeting the Princess at Gravesend, when she arrived in this country at the time of her marriage, the Prince went up to her and kissed her openly and heartily, in a very English and affectionate way. This was not etiquette, but it was nature, and youth, and truth. Nobody liked the Prince the worse for his frankness and demonstrativeness of affection. Princes get spoiled soon enough by custom, and put on the cold, formal politeness, which has grace without heart and courtesy without sincerity.

Her Majesty the Queen has always been remarkable for sincerity of character, and for a certain unconventional spirit, which has done more than all courtly forms to endear her to the nation. At one of the first *levées* she held after her ascension to the throne, she observed the late Mr. Hume at some distance from her. She rose and went to him, and, giving him her hand, said she was glad to see an old friend of her royal father. Many similar acts of spontaneity are recorded of Her Majesty. Her letter to the poor widows of the Hartley miners, 200 of whom perished so tragically some time ago near Newcastle, will be remembered for generations in that district. Her Majesty's late letter to Mr. Peabody is another example of a noble individuality of action. Official letters and public addresses in England are usually poor, tame, formal, conventional, spiritless things. England scarcely ever shines in those matters. But the letter to Mr. Peabody was a brief, forcible, graceful production. It was a worthy example of a royal letter. It would be a very fortunate thing if Her Majesty would compose her own speeches to Parliament. That meaningless insipidity, that official mockery of sense, that great State parade of saying something without expressing anything, would then have some human interest in it. What we want is to see our great personages endeavouring to do what common people should endeavour to do—try to do the best they can, and take the risk of that. As an eminent teacher lately said, "Those who are afraid to take aim never hit anything—to be always safe is always to be feeble." This is why we are glad the Prince of Wales has shown some individuality of character. We would, if we may venture to express the opinion, rather see him aim at being right than at being safe. A few errors of individuality are better than the faultless monotony of mediocrity. Even conventionality will be better if progressive. Uniformity judiciously broken up is a great gain to courts and to people.

Textile Manufactures of England.

BY WILLIAM ROSSITER, HISTORICAL SCHOLAR OF WORKING MEN'S COLLEGE.

IV.—GENERAL VIEW OF THE MANUFACTURES.

Having sketched the progress of the textile fabrics till the period of those great inventions which have so greatly increased the extent of the manufactures during the last hundred years, it will be necessary, for the better understanding of the nature of these inventions, to take a general view of the manufactures, the nature of the raw materials, of the different processes by which these raw materials are made into clothes, carpets, silks, calicoes, &c., and of the factory system generally. The present paper, therefore, will offer a brief outline sketch of the cardinal facts of the textile manufactures of England.

The raw materials of England's chief textile fabrics are cotton, wool, silk, and flax. Cotton grows in the flower of one kind of plant, flax is the fibres of another; wool grows on the backs of sheep, and silk is spun by small worms called, for this reason, silk-worms. Thus, of the four classes of raw materials, two—cotton and flax—belong to the vegetable, and two—wool and silk—to the animal kingdom.

Cotton, often called cotton-wool, grows in bunches of short fine white or grey fibres, varying from less than one inch to nearly two inches in length. These short fine threads are, by spinning, made into a continuous thread of any required length and thickness. A number of these threads being laid one way, and a number of others laid across them, the two sets are interwoven together, making a continuous sheet of the material.

These two processes, spinning and weaving, are the cardinal ones of textile manufacture: there are innumerable other processes, but they are all subordinate and subsidiary to these two—spinning, by which long continuous threads are prepared, and weaving, by which these long threads are interwoven to form fabrics of different kinds.

Wool also grows in bunches of short fibres, which are spun into long threads and woven into woollen cloth, carpets, blankets, &c. Silk is already in long threads when spun by the silk-worms, but these are too fine to be of any strength, and several of these are twisted together to make one thread strong enough for weaving. Flax, the fibre of a plant, has to be cleaned and separated into finer fibres before it is fit for weaving into linen, cambric, &c.

The chief varieties of raw cotton are American, East Indian, and Egyptian; of wool, English, German, and Australian; of silk, Chinese, Indian, Persian, Italian, and French; of flax, Irish, Dutch, and Russian. Of these, the American products come chiefly to the port of Liverpool; very much of the Indian and Australian to London; and of the German and Russian, to Hull.

The raw cotton is sent almost entirely to the towns of South Lancashire, of which Manchester is the chief; the wool goes to the towns of West Yorkshire, of which Leeds and Bradford are the largest, to the neighbourhood of Glasgow, and to Gloucestershire, of which last-named district Stroud is the centre. Silk is spun in the district lying between Derby and Manchester (Macclesfield being an important centre of the trade), and woven in London and Coventry; silk is also used to a great extent in the weaving of fabrics made of mixed silk and cotton. Flax is spun into thread and woven in linen, cambric, &c., at Leeds and Barnsley in England, at Dundee in Scotland, and at Belfast in Ireland. Only the chief seats of the respective trades are here mentioned, so that the reader may have a clearer conception of the localities of each.

The Cheviot Hills run across the island of Great Britain, dividing Scotland on the north from England on the south. From this range another series of mountain groups run southward towards the centre of England, separating Northumberland, Durham, and Yorkshire on the east from Cumberland, Westmoreland, and Lancashire on the west. From these hills, which thus form a backbone to the North of England, run down innumerable small streams, eventually joining together to form large navigable rivers, such as the Humber and the Mersey.

The greater part of the land eastward of this midland range of hills, and a large tract to the westward of it, consists of coalfields yielding fuel of an excellent quality, in beds of great thickness sufficiently near the surface to be easily worked. The two great necessities of a factory locality, fuel and water, are abundantly present in all the seats of our spinning and weaving industry, for coal and running water are as near at hand at Glasgow and in Gloucestershire as in Lancashire or Yorkshire.

Generally speaking, it will be seen that factories are established in suitable neighbourhoods near the large seaports of the kingdom, a suitable neighbourhood being one where water and coal are easily attainable. These, if not already populous places, soon become centres of population, and, in many cases, towns of considerable size.

South Lancashire and West Yorkshire possess all the requirements of nearness to the large seaports of Liverpool and Hull, of abundance of water and coal, and are now places of vast population. The towns in this district are numerous, and connected by innumerable lines of railways and by canals. It should be carefully remarked, however, that the district has become the seat of factories because of its natural features only, and that the dense population, the railways, and canals are only effects and not causes of this; though these railways and canals have been, to an enormous extent, the means of developing and improving the work of the district.

The same applies equally to the other great centres of textile industry—Glasgow, Stroud, and Leicester—all of which were chosen originally for their abundance of water and coal, and have, in consequence, become centres of dense population, and districts of ample railway accommodation.

A very important cause of England's greatness as a manufacturing country, is the abundance of good iron near the coal districts. English machinery stands very high indeed in the estimation of the world generally for ingenuity of design and excellence of workmanship; but ingenuity and good work would be of little use without an ample supply of material for use. Cotton can be bought almost as cheaply here as in India or America, because it is comparatively light in weight, and freight does not materially increase the price; but the same cannot be said of such heavy substances as coal and iron. Therefore, a country rich in coal and iron, has the materials of manufacturing prosperity, if it have also the necessary ability and industry to use them.

Consolation for the Emigrant and the Sailor.

Among the numerous physical and moral disadvantages contingent upon life at sea, that of a defective and unwholesome water-supply may be safely pronounced the most serious. It is, indeed, a fruitful source of disease, inconvenience, and demoralisation. Cleanliness, which has justly been said to be next to godliness, becomes an impossibility under such circumstances, and the long train of sad consequences thus entailed are known, at least theoretically, to all. Those who are enabled to live at home at ease, experience few of the annoyances arising from a scanty supply of water. Our rivers, lakes, and streams, and the bosom of the ever-bounteous earth, yield abundance of Nature's pure fluid, and science having it completely in its power distributes it with lavish hand throughout our households. Private beneficence, too, has rendered important service to the community in the same direction, and drinking-fountains exist on all sides for the refreshment of the wayfarer. In short, good water and plenty of it is the rule on shore, whilst at sea these conditions are exactly reversed.

We are perfectly aware that, so far as emigrant ships are concerned, much improvement has of late years been effected. Government inspectors now take especial care of those who from choice or necessity commit themselves to the perils and the trials of oceanic transit. They prevent the recurrence of the disastrous consequences which in past times have arisen from neglect, and from the cupidity or thoughtlessness of ship-owners and agents, and they insist upon the observance of all ordinary arrangements for the promotion of the health and comfort of emigrants. Government inspectors cannot, however, achieve impossibilities nor counteract natural laws. They are powerless, for example, in preventing the

deterioration of water from its long standing in tanks and casks. It is true that calculations are made as to the probable duration of each voyage, as to the number of persons to be provided with sleeping room and breathing space between decks, and as to the quantity of food and drink necessary for the sustentation of each passenger and sailor. Upon these calculations the scale of accommodation and of provisions is based. An evil beyond the power of remedy hitherto, has been the undrinkable state of the water on board ship after the lapse of a certain time. When an outward-bound emigrant ship, with its complement of perhaps 400 men, women, and children as passengers, and its fifteen or twenty officers and men for a crew, is on the eve of departure, much space is necessarily occupied with tanks of fresh water. What kind of fluid such of the tanks as remain charged towards the termination of a three months' voyage contain is painfully well known to those who may have been compelled to partake of it, and may be imagined by those who have not. It is simply poisonous in its nature, and destructive to health. Were such a system of water-supply to prevail in our homes on shore, we should be justified in expecting—and especially in seasons when epidemic complaints exist—the worst possible consequences. On board ship, and in company with defective ventilation, it ensures the generation of various diseases, and then exaggerates their virulence and fatality.

It is scarcely necessary to dwell further upon this part of the question of water-supply at sea, for all voyagers are aware of its usually defective nature, and the evils resulting from it. It is one of the banes of the poor emigrant; but, fortunately, it has its antidote, and we shall now endeavour to indicate the direction in which a sure remedy is to be found. It is in the ocean itself. By the processes of evaporation, condensation, and percolation, the ocean feeds our rivers, irrigates the earth, and supplies our springs; and man's ingenuity, availing itself of a knowledge of the action of those beautiful laws, has at length devised a mode of copying them and turning them to useful account on board ship. A very ingenious contrivance has been recently devised by Mr. Graveley, an engineer, for distilling sea-water in large or small quantities, and thus of making the ocean the direct means of supplying ships day by day with the purest fresh water.

Steam, that faithful and obedient minister to human comfort and convenience, is the agent and prime mover in effecting this admirable result. A small high-pressure steam-engine is, indeed, the main feature of the Graveley distilling apparatus; and, as will be seen presently, distilling is not its only duty. Mr. Graveley has made it a mechanical servant-of-all-work into the bargain. Connected with the crank shaft of the engine, which latter in an ordinary emigrant ship would be placed in the galley or cooking-house, are two pumps. One of these draws water from the sea through a suction pipe, the mouth of which opens out a few feet below the water-line of the ship, and forces it through a series of small pipes into a large receiver or boiler. There it is converted into vapour by the application of heat. The vapour, passing afterwards into a vessel surrounded by cold water, is condensed, and mixed with a certain amount of air introduced under pressure. It is drawn out sweet and fresh as spring water. Such, in brief terms, is the whole of the arrangement for converting salt water into fresh, or rather for separating the salt held in solution by the sea, and leaving the latter totally unimpregnated with saline matter. The apparatus may be made of any capacity. That suitable for an emigrant ship, with 400 or 500 passengers on board, occupies a space of about eight square feet, and yields readily 1,000 gallons of water every day.

The inventor has not rested content with this invaluable result; he has utilised the distilling engine to a far greater extent. The boiler of the engine is in connection with a series of cooking stoves and ovens, and the surplus steam from it, instead of passing idly into the air, is made to boil, bake, or stew the solid food for the whole of the passengers and sailors. In addition to this, the engine is made, by means of trimetres, easily engaged or disengaged, to furl the sails, to lower or raise the topmasts and yards, to lift the anchor, to warp the ship into or out of dock, or off a lee shore, and to load or unload her cargo. By making a slight alteration in the valve gear, the pump for supplying the distilling chamber is converted into a very powerful agent for suppressing fire, and is at all times available for washing decks, &c. Lately, Mr. Graveley has added to the engine a bilge-pump for discharging such water as would otherwise accumulate between the inner and outer planking or plates of the ship, and a revolving fan for withdrawing from the hold, cabins, and berths, vitiated air, and supplying its place with pure air from above.

It only remains to be said that the cost of the engine and apparatus is not great in proportion to their exceeding usefulness and value, and it becomes really inconsiderable when the economy it effects in regard to stowage-room is remembered. In place of encumbering the vessel with tanks and casks, the space they would occupy is available for a largely-increased and far more profitable cargo; and a few voyages under such circumstances repays, therefore, the expense of the whole apparatus. It constitutes at once a comprehensive, labour-saving machine, a distillery, and a self-acting kitchen, if that term be nautically admissible.

We believe that Mr. Graveley contemplates making his universal steam-engine provide batches of bread every morning for the comfort of passengers, instead of the "hard tack," in the shape of sea-biscuits, with which at present they are only too familiar. Some of his experiments in this direction have already been attended with considerable success, and there is little doubt that in time the task will be completely accomplished. It will not be denied, in presence of the foregoing facts, that the title of our article is a just one, or that we have succeeded in affording a prospect of coming consolation for the emigrant and the sailor.

SIR W. HUTT, M.P., ON INDUSTRIAL EXHIBITIONS.

At the recent opening of the Gateshead Industrial Exhibition, Sir W. Hutt said:—"The gentleman who first originated these exhibitions in this country, had before him this idea, that the exhibition might be a means of affording to the working classes occupations agreeable in themselves and ultimately profitable, and which were more worthy of their occupation than the listless and grievous practices to which they were often condemned, and far more desirable than the contaminating influences of the public-house. Well, this was a kind and generous object; I may give it a higher title still, and say it was a patriotic object. If we are to love our country as rational beings should love it,—not for its sticks or its stones, not for any accidents of soil or climate, but for the air we breathe, the institutions that ennoble the mind, and the means that make it a living country to men;—if these are objects that we should love in loving our country, I can conceive of no higher aim of patriotism than the endeavour to exalt the moral nature of those millions upon whom the highest destinies of our country must ultimately depend. And I know that the thoughtful and reasonable men amongst the working classes—and there are thousands of them—entirely concur in the object thus proposed to them; but I know also that unless those institutions had received the support of other motives than this, they never would have enjoyed that popularity and support of the working classes which they have everywhere received. Now, let me speak plainly upon an important subject. There is going on in this country a contest between the representatives of capital and labour such as, I believe, never before occurred in the history of European civilisation, such, perhaps, as never before occurred in the history of the world. The two parties are each of them anxious to acquire for themselves—as it is most natural that they should—the largest share of the advantages, the credit, and the profit of their enforced and necessary co-partnership. The efforts of the working men to stand up for themselves are shown in Co-operative Societies, in Working Men's Clubs, in exhibitions such as this, and so long as the struggle is continued on either side by means so honourable and so laudable, I can only say, in the language of the umpires of ancient chivalry, "Set on, and God defend the right." But, gentlemen, let us not defend—let us not undertake the battle of what is right—let us not fight the battle of truth—with the weapons of error. Depend upon it that if either party have recourse to violence or wrong in support of their views, they will embitter, and they will degrade a most legitimate contest, and they will render any permanent or satisfactory settlement of it almost impossible. I think it is one of the great advantages of such an institution that it has a strong tendency to introduce a spirit of conciliation and of mutual concession into the struggle that is going on. Here the employer of labour, the capitalist, may learn what the working men are capable of without his intervention or his patronage. By the study of such an accumulation of work as he has assembled in this exhibition, they will be led to form a just and generous estimate of that brave and patient industry, that singular ingenuity, that occasional genius here and there, and those marks of artistic merit of which the working men are now found capable of giving you examples. On the other hand, the working men may learn the great advantage to themselves of that combination of labour, of that division of employment, of the use of the most perfect, and, consequently, the most valuable tools and machinery, the value of the most extensive and the most advantageous markets, all of which things are obtainable by means of the employment of capital. I think, then, that if the two parties will study these and similar exhibitions with attention, if they will only read these things aright, they must come to a conclusion tending to bring their great industrial dispute to a termination satisfactory to both sides."

Facts and Memoranda.

Bessemer Steel in France.—It appears from returns prepared by the committee of ironmasters that in 1863 there were 1,856 tons of Bessemer steel manufactured in France, in 1864 6,750 tons, and in 1865 9,751 tons.

Propulsion of Shot.—It would appear, from experiments conducted in America, that shot does not begin to move until a large proportion of the charge behind it has been ignited, and that it moves through one-half to one-quarter its diameter before the whole is ignited.

A desire for the opportunity for gymnastic exercises appears happily to be spreading in England just now. A gymnasium has been established in Whitehaven. Arrangements are being made for opening one in Reading. In Liverpool is to be found one of the most perfect yet established, the cost of which has been about £14,000. In Manchester they are only waiting to see the result of the movement in Liverpool.

Consumption of Iron in France.—Some statistics have been published to show that the consumption of iron in France is much less than that in England, in proportion to the population. The consumption of cast iron in England in the year 1863, with a population of 26,800,000 souls, is set down at 4,357,000 tons, or about 230 lb. weight a head; while France, with a population of 37,500,000, consumed only 70 lb., or one-third of the consumption in England. The consumption in France is now rapidly increasing, in consequence of the number of new buildings in progress. Ten years ago almost all the railway bridges were built of stone, in consequence of the high price of iron. At present similar works may be constructed at a less cost in iron than in stone.

The Worcester Pottery Manufacture.—The Worcester manufacture appears to have had a political origin, and to have been fostered with a view to reviving the decaying trade of the "faithful city" by an infusion of new blood, and an addition to the voters, in order to carry an anti-Ministerial candidate into the House of Commons. Practically, however, the chief promoter was Dr. Wall, who, after a patent taken out by Thomas Frye, in 1749, succeeded in producing an "artificial porcelain," which, for "translucent fabric, perfect unison of body and glaze, and general approximation to its great prototype, the porcelain of China, has no rival." Dr. Wall's love of art led him to the study of a product in which so much taste could be shown, and his technical skill enabled him to overcome difficulties which had baffled his predecessors. Whether Dr. Wall and Thomas Frye hit upon the same idea together by one of those curious accidents which have frequently occurred, or whether Dr. Wall was stimulated by Frye's patents, is not quite clear, but a Porcelain Company was formed at Worcester, and thus the famous manufacture commenced. The pottery was erected on the Warmstry House site, sloping down to the river, in May, 1751, and the manufacture rapidly increased.

Shearing Sheep by Machinery.—An American has invented a sheep-shearing machine. With two men to hold the shears and one to turn the wheel, the machine clips sheep with an almost unimaginable rapidity, as there is no expenditure of muscular labour besides turning the wheel, which is not harder than a small spinning-wheel, and the whole machinery does not occupy more room than such a wheel. A new principle in mechanics has been developed in this invention, which is the secret of its success. This is a flexible shaft, through which the power is communicated from the driving-wheel to the shears, which are kept rapidly clipping as long as the driving-wheel turns, no matter in what position they are held, nor how much the driving shaft is contorted, even to bending it around the body of the sheep. This driving shaft, about three feet long, is a spiral brass wire, one end of the coil being connected with a small wheel attached to the butt of the blades of the shears, and the other to a pulley driven by a band on the end of an arm, which is partially flexible, attached to the small frame that holds the driving-wheel. On the opposite side is another arm and shaft and shears, for another shearer, each working independent of the other. The shears are made with guards, so that all that is necessary is to hold them level and steady on the skin, pushing them forward as fast as possible.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

TWENTY PRIZES—TEN of FIVE POUNDS each, and TEN of THREE POUNDS each—are offered by Messrs. Cassell, Petter, and Galpin. One Prize of Five Pounds for the Best Essay, and One Prize of Three Pounds for the Second Best Essay will be given. The list of subjects and the conditions of competition appeared in Nos. 10 and 11 of the Working Man.

We have much pleasure in announcing that the following gentlemen have kindly undertaken the adjudication of the Prizes:—The Right Hon. Lord Houghton; Right Hon. Lord Lyttelton; Right Hon. Lord Talbot de Malahide; Lord Milton, M.P.; Charles Buxton, Esq., M.P.; John Stuart Mill, Esq., M.P.; Rev. Charles Kingsley, M.A.; Rev. F. D. Maurice, M.A.; and the Rev. J. Begg, D.D.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JUNE 2, 1866.

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Rest-Day Doctrines.

"The world is too much governed" is a remark constantly receiving uncomfortable illustration. Nearly all our Acts of Parliament which prescribe duties to be performed are so many directions to persons to do what they ought to do of their own accord. Lord Chelmsford's Bill to prohibit Sunday trading is of this description. No doubt tradesmen require relief from the obligation of keeping open their shops on Sundays. It does not meet the case to say, "A shopkeeper need not open his shop on that day, unless he pleases. There is no law to compel him to do so, and there needs no law to prohibit him from doing what he is not disposed to do." Though there is no legal law to compel a tradesman to open his shop on a Sunday, there is a social law that practically compels it. In business a man must do what his neighbour does, or lose his customers and fall behind. The moment one offers advantages or a convenience, the well-known sheep-dance follows, and every shopkeeper has to imitate the one who leaps over the stile. This seems an absurd movement, and, no doubt, might often be avoided; but, as a rule, it has to be done. This is the best argument on Lord Chelmsford's side. There are instances in the history of working men exactly resembling that which we have described. Some years ago an Act had to be passed to prevent the employment of children in factories until they were of a certain age. The interest of the parents was to keep their children at home, and at school, until they were well grown and well informed, or tolerably well instructed in the rudiments of knowledge. Any one would have said that Trades Unions would have enforced a Factory Act among the parents, without the aid of the law. The mere pride of the workman should have kept his children at home. There should have existed a sort of public opinion in every factory, which should have branded as disgraceful any parent who sent his child to the workshop during tender years. But none of these forces or feelings operated, and the law was called in, to effect what ordinary sense and common feeling should have done. There was no law to compel parents to send their children to work while they were young, yet they did it; indeed, it required a law to restrain them. This is one of the most humiliating social facts of our industrial history.

However, the law which rightly stepped in to protect children from their parents, declines to step in to protect tradesmen from their customers. The grown-up man of business should, if anybody should, be able to protect himself. And this is the chief side of the argument against Lord Chelmsford's Bill. And the question arises, Are there no methods of attaining the end in view, without having recourse to penal statutes? Law itself is but a choice of evils. Statutes imply new perplexity, and cumbrous and expensive machinery for their enforcement. A staff of lawyers and judges are needed, or made additionally necessary, for the interpretation of each new statute; and increased police machinery is another result. That nation holds the most honourable place that is governed by laws simple and few. If a great book be a great evil under any circumstances, a great statute-book is a greater, under all. A great legal writer has said that "such has of late years been the overloading of the statute-book, that men turn in despair from any attempt to know its contents; and instead of there being laws few and plain, but certain and constant, they are endless, intricate, involved, and contradictory." No new law, therefore, is admissible, unless a very clear case can be made out for it. This has never been done on behalf of further legal interference with the Sunday. Many persons are of opinion that steps might be taken, both by traders and purchasers, to put an end to the evil complained of on all hands.

Everybody is agreed that a day of perfect rest once a week is desirable; indeed, the doctrine is becoming pretty general that two days' rest would not be amiss. When Mr. Disraeli was a young man, he tried to sum up, in one of his little-known "Runnymede" Letters, the characteristics of the English race since the Reformation; and he resolved them into one word—"Industry." But, nevertheless, John Bull likes his leisure. The portrait which *Punch* always gives us of him is that of an elderly gentleman, with an eye to business, obesity, and ease. Over-work has plainly had its day. Medical people have set their faces against it. Doctors die of too many patients; statesmen, of too much responsibility; men of business, of too many cares. And now Mr. Edwin Chadwick has come forward and proved that too much work does not pay. There is no doubt that he will carry the day. Over-work is not agreeable, and when it does not answer it is plainly a mistake. The drill-sergeant knows that the soldier deteriorates in discipline if he has too much of it; two hours' drill per day is all the strongest man can go through with advantage. Mr. Chadwick has proved that a pupil cannot learn if he is kept at his tasks more than a certain time, and that workmen will do more, and do it better, if their hours of labour are few, and within the limits of their natural strength. The tendency, therefore, of society is to short time—to less labour and more rest. The short-time movement has grown into fashion, and is destined every year to extend itself. General tradesmen begin to shut up earlier; and the same rule is capable of being extended to provision-dealers and markets. The Saturday half-day holiday is being extended, and in some manufacturing districts the whole of Saturday is being claimed, and in some cases is conceded.

The reason why Sunday trading is admitted to be a necessity in some districts is owing to the fact that numbers of people of the poorer class are kept employed until nearly midnight on the Saturday, and receive their wages so late that neither themselves nor their families have opportunity of making purchases at other times than Sunday mornings. To make a law, therefore, is—however desirable, morally or religiously—attended by privation upon classes who socially fare the hardest, and therefore are entitled to the most indulgence. To extend the Saturday holiday to these classes, to abridge their hours of labour, is a far more merciful thing than coercing their purchases by law, and would answer the end in view much better than any law would do it. Another mode open is to create an improved public opinion among purchasers. The rich have given up, or are giving up, the habit of making late purchases on any days. The working class ought to be taught to do the same thing. It ought to be held to be disgraceful in a working class family to go making purchases late on a Saturday night. If they are obliged to do it they ought to complain of it, and protest against it; and unless obliged they ought never to do it. Trades Unionists should make speeches on this subject, and write tracts against it—call attention to it in every way, and influence all the families whom they have the means of reaching, to act upon this principle. Energetic action in this direction would very soon overtake the evil of Sunday trading, and correct it. We think this plan preferable to a combination among tradesmen to refuse to sell, as this would act upon the poor, who have no choice but to buy on Sunday, with all the force and privation of the law against it. The *Pall Mall Gazette* is in favour of this plan; and it certainly would have the effect of liberating thousands of assistants, who are now obliged to work late on Saturday and on Sunday too. By one plan or the other, and perhaps better, by both united, we are sure the evil of Sunday trading could be put an end to without the suspicious aid of Lord Chelmsford.

GRIND THE TOOLS.

Keep the tools sharp, or they will not cut. A dull tool wastes time, and he who permits it to work, when in that condition, is a dull fellow. The best turners are those who have the sharpest tools; the most successful surgeons use the keenest knives; and the most enterprising and energetic men in civil life are those whose wits have been early ground sharp, and whose perceptive faculties have been whetted by sore experience in early life. A dull tool is a useless implement, and a thick-headed, unobservant person is the only one who should be found wielding it. The obtuse edge neither cleaves nor separates, but bruises and works off by attrition particles of the substance on which it operates. Grind up the tools and sharpen the wit as well; if one is keen, the other will, in all probability, be in a similar state, from force of sympathy alone. A boy with a dull pocket-knife is one who swings on the gate, and who dodges his duty; he is one who, in after life, will be a dunce and a cumberer of the ground; he will add nothing to the world of science, neither will he take from it; his existence is merely animal, his thoughts and ideas—if he has any—wholly conventional. His comrade, with a keen blade, makes models of machinery, of boats or steamers, and in time he becomes a George

Steers, or so develops his mother-wit as to be a decided acquisition to the community. Let us have all the tools in good condition—sharp, trenchant, and always ready for service; then, and then only, will the result produced be equal to the time and labour expended.—*Scientific American.*

*Electrotyping.**

ELECTRO-SILVERING.

Baths.—It is by means of the double cyanide of potassium and silver, dissolved in an excess of cyanide of potassium, that electro-chemical silvering is accomplished. Several methods may be employed to arrive at this result. We shall give the simplest.

Dissolve 4 lb. of silver in 13 lb. of nitric acid, and evaporate the solution over a spirit-lamp until the nitrate of silver fuses. In this manner not only is the excess of acid driven off, but the small quantity of copper (which is always present, in the purest commercial silver) is reduced also. The nitrate of silver is then dissolved in 5 gallons of distilled water.

On the other hand, dissolve 4 lb. of cyanide of potassium in 17 pints of water. This solution added, little by little, to the solution of nitrate of silver, causes a precipitate of cyanide of silver and the formation of nitrate of potassa. This operation, carefully conducted up to the point when the addition of a small quantity of cyanide no longer causes a precipitate, the nitrate of potassa may be removed by decantation. The precipitate remaining at the bottom of the vessel is washed with distilled water, and immediately dissolved in 4 lb. of cyanide of potassium, then sufficient water added to make up 20 gallons. The bath is not immediately fit for working. Before it will yield a good deposit, an equal quantity of an old bath must be mixed with it, or, to give it the qualities of an old bath, it may be boiled several hours; or lastly, and which gives the surest result, add 2 lb of yellow prussiate of potassa for every 4 lb. of silver; but this last composition of a bath—the most commonly employed—is not adapted for brilliant silvering.

The solution of silver thus obtained is put into large wooden baths, lined with gutta-percha, in order to prevent the absorption of the liquid. The vat is divided lengthways by rods, to which the anodes of pure silver intended to maintain the bath in a constant state of saturation are attached. All the anodes, connected together by a copper frame, communicate with the positive pole. Between the anodes, the copper rods communicate, by a series of isolated frames, with the negative pole of the battery. Upon these the hooks holding the articles to be silvered are hung. The articles are then washed in potash ley, rinsed in water acidulated with nitric acid, then passed to the acids, or pumiced, according to the nature of the metal; lastly, dried in hot sawdust. This done, the articles are weighed, and the amount of metal deposited is ascertained by the difference between their weight before and after silvering. As the articles are liable to become oxydised by exposure to the air, and greased by contact with the hands in weighing, before they are immersed in the bath they are submitted to a second cleaning, which consists in immersing them in benzine, in water acidulated with nitric acid, in nitrate of mercury, and rincing in fresh water. The articles become coated immediately they are immersed in the bath. For a bath containing 130 gallons of liquid, four Bunsen's elements, measuring 100 inches by 160, will suffice to deposit nearly a pound of silver in four hours.

Brilliant Silvering.—The silver deposit from the cyanides is usually *mat.*

By adding a little sulphide of carbon to the silver bath, the metal is deposited in a brilliant state. What takes place in the liquid to produce this result is not clearly understood. The best manner of employing the sulphide is to put into a glass-stoppered bottle 1½ oz. of sulphide of carbon to 6 gallons of silver bath, and leaving them in contact 24 hours: by this time a blackish precipitate is formed, and the solution is ready for use. Before each silvering operation 1 part of this solution is added to 100 of the bath, and immediately the deposit of silver becomes as brilliant as if it had been polished at the wheel.

The metal employed in the construction of the articles to be silvered or gilt is brass, composed of two-thirds copper and one-third zinc. It serves for all kinds of turned, stamped, and hammered objects. Another alloy of copper and zinc, in different proportions, specially arranged for this kind of manufacture, is employed for cast and chased works.

The first alloy serves to make the forms, the second is employed for what is called the *furniture.* If the forms are round or oval, they are turned at the lathe. From the first model made in plaster, the article to be executed is turned in wood; then a series of moulds is established, which are intermediate between the articles to be made and the sheet of brass which is to be chased. These moulds are called mandrins. The metal is raised or depressed by making it take the shape of the mandrins by means of steel tools of different shapes, according to the effect to be produced. Between each stage of operations the article is heated in a reverberatory furnace. A prize cup, for instance, requires five mandrins and four heatings in the furnace. If its form is not irregular, the last mandrin is made of boxwood, divided into several pieces, retained in position by a central core of metal, which, being withdrawn first, allows the other pieces to come out easily. If the forms are square at the bottom or sides, the employment of iron matrices is necessary.

TURNING OVALS.

* Continued from page 330.

Political Facts.

It would puzzle the Parliamentary statisticians to explain how it is that so fashionable a town as Brighton always has Liberal, indeed Radical, members. George IV., when Prince of Wales, built a pavilion there; it stands there still, and Royal ideas, no doubt, float about Brighton yet. Nevertheless, the town elects Radical members, and the fashionable people do not flee from it.

Mr. Roebuck relates, in one of those political pamphlets which first made him famous, that he knew a distinguished soldier (probably the Duke of Wellington) who, in encountering a friend, said, "Where do you come from?" The answer was, "I have just come from Mr. O'Connell." "Did you shake hands with him?" was the next inquiry. "Yes." "With which hand?" "With my right." "*Then shake my hand with your left!*"

Political toleration has progressed since then, and Brighton partakes of it, and is rather proud than otherwise of its Liberal members. A franker, more honest, or more spirited English gentleman never entered the House of Commons than Mr. Coningham, the late member. Professor Fawcett has succeeded him, and Mr. James White is the senior member, who, from his majestic stature and resonant voice, was called the "Plymouth Sound" when he was member for Devonport, and is now regarded, in the best sense of the term, as the "Brighton Pier," which word might be spelled with a double *e.* Constantly saying useful things, and always doing sensible ones, he moved, two years ago, for a Parliamentary report, showing the population and electors of the United Kingdom. Some time ago Lord Elcho was, very properly, anxious that an idea should be acted upon, upon which Mr. Edward Chadwick had laid great stress, namely, that the new Reform Bill should be based upon statistical information, and took credit to himself for having induced the Government to supply to Parliament the information upon which their Franchise Bill was based. But Mr. White was before his lordship in this sensible proposal; and a return which Mr. White obtained in 1864, and to which too little attention was paid at that time, Government have re-published in 1866. A more curious and instructive document has seldom come before the House. One department of this return gives the population of English counties in 1821, 1831, and 1861, and shows the increase and decrease of population up to 1861. Since 1831 the population of Northern Devon has decreased nearly 2,000; the population of Western Sussex has decreased 1,500; Northern and Southern Wilts, Montgomery, and Radnor have decreased. In the Parliamentary boroughs and cities, Laun-

ceston, Honiton, Lyme Regis, Lymington, Taunton, Arundel, Salisbury, Bewdley, Kidderminster, Frome, Westbury, and Knaresborough, are dying constituencies. Stroud has decreased 4,000; London (city) has decreased 10,000. London is alive, no doubt, but its population has fled to the suburbs. They are all back during business hours; the other places have lost them entirely. Mr. Howells, who recently published a charming volume on "Venetian Life," states that Bohemian organ-grinders have "a dead-in-earnest manner" of playing. This seems to be the way with numerous places in England. Many counties and boroughs have remained stationary for thirty years, neither increasing nor decreasing, neither dead nor alive; others are dead and decaying; still they have members of Parliament. They ought to be represented by ghosts of former members. The Davenport Brothers might arrange for this.

In 1832 the Reform Bill created a new set of £10 voters, or, as the late Mr. Fox, member for Oldham, used to style them, "a Worshipful Company of Ten Pounders." But it left in many boroughs a class of voters who were known as "freemen, scot and lot voters, pot-wallopers, and the electors with ancient right qualification." In Chester there remains 1,300 of these curious creatures; in Liverpool, 1,300; in Leicester, 1,300; in Norwich, 2,000; in Nottingham, 1,600; in Stafford, 1,000; in Coventry, 4,000; in York, 2,500; in Kingston-upon-Hull, 1,300. But experience shows that the "freemen" are not free, and are well known to the "man in the moon;" and the "pot-wallopers" deserve boiling down, and there is fear that their very jelly would be venal.

Mr. White's return also shows the number of square miles occupied by each borough under the Reform Act of 1832. Wallingford includes 25 square miles; Buckingham, 28; Bodmin, 26; Tiverton, 27; Wareham, 47; Christchurch, 35; Petersfield, 35; Woodstock, 37; Wenlock, 73; Eye, 30. While many boroughs have scarcely half a square mile, some of the most populous districts have the smallest area.

Another division of Mr. White's return shows that the English counties pay three millions and a half of income-tax; the Scottish counties less than half a million; Irish counties more than the Scottish counties, but still less than half a million. The English boroughs pay five millions; the Scottish boroughs half a million; the Irish boroughs a quarter of a million. All England pays eight millions and a half towards the expenses of the State, in the shape of income-tax alone; Scotland less than a million, and Ireland three-quarters of a million. Mr. White's return shows under what schedules this money is levied, and how much each city, borough, and county contributes to it. It is, in this return, also shown that there were, in 1831, 75 boroughs with populations of less than 8,000 each, which returned 118 members, and that 53 of these boroughs still remain, with populations of less than 8,000, and nevertheless return 83 members. The total number of persons in these 53 boroughs is only 314,000; while there are, as the same return shows, 15 municipal boroughs, 44 towns, and 12 metropolitan parishes, including an aggregate population of upwards of one million of persons, who have no representative. We have omitted odd numbers and taken gross results—rather under than over. Nothing makes statistics so tiresome as enumerating fractions of amounts, which nobody can remember and nobody cares for. The gross approximate total is all that concerns those who reason upon figures; the fractions concern alone the arithmetician or mathematician, who uses them as bases of recondite calculations.

The above political facts will enable any reader to understand many discussions as to the statistical foundations of the new Reform Bill, intended to afford a better representation of the working classes; and for sevenpence-halfpenny Mr. White's Return of Population and Electors, No. 259, can be purchased at the Parliamentary Paper offices.

French Imports of Wrought Iron.—The wrought iron imported into France for building purposes during the first three months of the present year amounted to 8,013 tons, and the cast iron to 3,735 tons. The wrought iron imported during the corresponding period of last year amounted to 3,097 tons, and the cast iron to 2,943 tons, showing that the importation of wrought iron increased this year by 158 per cent., and the importation of cast iron by 26 per cent.

Co-operation giving an Account of Itself.

We are glad to see that the newspapers have given an account of the pleasant four o'clock tea held on the 10th instant in the Town Hall, Manchester, at which Thomas Hughes, M.P., presided, when the work-people, friends, and shareholders of "Greening and Company, Limited," met together to celebrate their first co-operative dividend. We trust that Messrs. Greening, Limited, will meet with unlimited success. This company of wire-workers have been in operation about half a year. Mr. E. O. Greening is a zealous friend of co-operation, and the work-people were promised a share in the profits made by the company. To the surprise of Mr. Hughes, and many other persons also, a profit of fifteen per cent. has been made. Everything has favoured this co-operative scheme. A fire broke out at the factory, and stopped all business for a time; but the fire had the discretion or consideration to break out before the company had received the transfer of the concern, and so the loss fell upon somebody else. The fire has kept its place since. The directors of the company have provided that five per cent. of the profits made shall be paid to the hands. This is keeping good faith, and will produce good results. This company, as we have said, has not been in existence long, and we must wait awhile before it can be seen what elements of permanency and success this form of manufacture can secure. We expect it will answer well.

In the course of his address Mr. Hughes contrasted the present state of the co-operation movement with its condition fifteen years ago. About that time he and other gentlemen in London, who were much interested in the subject of association, came down to Manchester by the invitation of working men in different parts of Lancashire who were already endeavouring to set up co-operative societies. But at that time there was no law under which they could be registered; the old partnership law made every member a partner, and if one incurred debts without the consent of the rest, he might take the goods of the society, and there was no remedy except a Chancery suit; or if the society had to sue anybody who had contracted with them, they could only do it by making every member a party to every proceeding in the suit or action. A conference was therefore held with the working men at the "Moulders' Arms," and they had a very satisfactory talk over the line of action to be pursued, and the amendments of the law to be promoted. Nobody outside showed any interest in the subject then; but now the case was very different. Some of the most eminent men in the country wrote to express their sympathy with the principles of this undertaking, and on this platform were some of the leading gentlemen of Manchester. The change in the law had been not less remarkable. In the very first year after that conference in Manchester, they managed to carry the Industrial and Provident Societies' Act, by which all the early associations and stores were registered; and this was the first act that recognised the principle of dividing profits among those who laboured, as contra-distinguished from dividing them merely upon capital subscribed. Many acts had been passed since, which enabled these societies to register, or get the benefits of a legal standing otherwise than under that act. It was now competent for co-operators to associate merely as the old joint-stock companies did, a number of small shareholders putting together their few pounds or shillings, instead of richer men putting together their hundreds or thousands to form the capital of an undertaking, and these societies might divide profits according to the old method of dividing, simply upon the capital subscribed by each member. On the other hand, it was competent for them to carry out to such extent as they might deem advisable the other principle of the sharing of the profits between all those who contributed to the joint work. Whether they were co-operative stores, or associations of workmen, like the Hatters' Association of Manchester (he hoped it existed still, for it made very good hats, which he had worn), he sincerely wished they might adopt the latter principle.

After controverting various assertions by writers in the *Fortnightly Review*, and other periodicals, he referred to the change in the law which met one of the besetting difficulties of the co-operative system—the want of the business experience and talent of the employer class to preside over the operations. "It was now possible for great employers to admit their men to share in profits without encountering any interference with the management on the part of those who thus participated in its results. He believed this company had done rightly and wisely in resolving at their general meeting, without one dissentient voice, that when their profits exceeded a certain amount, a part should be given to those employed, even who were not shareholders. He believed it would have a beneficial influence upon all the work-people, that they would work the better for it, and begin to see the real meaning which underlay these partnerships of industry. He hoped the shareholders would have faith in their principles, and work this great experiment through fairly to the end. They were right in believing in a human fellowship which should bind together all who were connected in any work on the face of this world, and the more they realised this the more they would feel that this nation was one great family—that, throughout society, 'where one member suffered all members must suffer, and where one rejoiced all would rejoice together.' The nearer we could in our industrial operations, as well as in our common life, come to the great maxim of doing as we would be done by, the better for ourselves and for our country. Many people called this sort of talk 'crotchets,' and said it was bringing Christian principles into places where they had no business. But he utterly denied this, and refused to have one set of principles for the workshop and another for his common life. In so far as we earnestly endeavoured to work upon the highest principles, and to accept nothing less than the highest principles in every work, so much the more successful should we be. Nothing worthy of being called success, and which would do good to our fellows as well as to ourselves, could be achieved, unless we adhered to those, the very highest principles ever enunciated on this earth. Upon the honesty with which we endeavoured to work out these principles, in every department of life, all social progress must depend. In as far as we did it, we should find a wider education, a truer moral life, more temperance, more moderation in all our actions, more self-respect—to sum up, in fact, a higher and truer civilisation. It might be called a dream, but if one's belief in a good time coming, through the development of these principles, were a dream, he would sooner dream it than be awake amongst the terrible facts of some of our present so-called civilisation. But he did believe that these principles would bring a better time, and that we or our sons might live to see it, and in England; but whether so or not, we might depend it would be worked out by some persons in some parts of the world; and he asked all who heard him to believe this, and to work towards it."

Most of the metropolitan journals have written leaders upon this dividend *soirée*. The *Times* says, somewhat fiercely, but not untruly, "We have heard a great deal of co-operation, but it has done as yet very little for the workman as a labourer. It has neither produced better manufactures nor paid the mechanic better wages." This is true to a great extent. Rochdale, though its best co-operators struggled manfully for it, failed to get co-operation carried out in manufacturing. The wages paid in stores are no great things. The situation of workmen under co-operative employers is nothing to boast of as yet. This company of the Greenings has come late in the field, but it has produced some results, which point to better days for industry. Co-operation has not yet done half of what it is already manifestly capable; but this Manchester dividend *soirée* looks like the beginning.

NITRO-GLYCERINE, OR GLONOINE.

Glycerine, the sweet principle of oils, was discovered by Scheele in 1789. In 1847 M. Sobrero effected a chemical alliance between glycerine and nitric acid, the result of bringing the acid and oil together being to produce a highly-powerful explosive called nitro-glycerine, or glonoine, now known by several other names. For some time glonoine seems to have been used almost exclusively as a medicine, and was an especial favourite among the homœopathists. Bearing in mind the more recent exploits of this remarkable preparation, it sounds somewhat anomalous to find it described as "introduced into practice for the relief and cure of those distressing affections popularly known as 'nervous.'" Gunpowder has been taken as a condiment in the absence of salt, and gun-cotton is understood to be an excellent application for wounds: but we would advise our homœopathic amateurs to look narrowly after their globules of glonoine. Since the date of Sobrero's discovery Mr. Alfred Nobel, a Swedish engineer, has taken the new agent in hand and adapted it for blasting purposes. What is the exact nature of the modification thus brought about we have not yet learned. From the beginning nitro-glycerine was a highly explosive article. Whether Mr. Nobel has made it stronger or cheaper we cannot say; but the product appears lately to have borne the name of "Nobel's blasting oil," and in that capacity has been urged upon the notice of the Californian miners and the constructors of railways. In appearance nitro-glycerine is an oily fluid, of a pale yellow tinge, and looks as harmless as if it were merely some odoriferous compound for use on a lady's toilet table. More strangely still, the contact of flame does not necessarily cause the explosion of this powerful preparation. This is so much in its favour; but, on the other hand, it is found to possess an ugly trick of setting fire to itself, or even exploding spontaneously. In fact, its nature does not seem at present to be properly under-

stood, so that when we are conscions of the presence of glonoine oil we scarcely know what to do with it. This was the predicament of the Sydney authorities at the date of the last mail, a consignment of glonoine being expected in the colony, where its arrival was awaited with no little perplexity and alarm. The first recorded disaster with this compound was at New York, some months ago. A box, afterwards believed to contain glonoine, was found to be in flames. It was thrown out of window, and on reaching the pavement exploded with terrific force, doing considerable damage in the neighbourhood. A similar disaster appears to have occurred more recently at Sydney. A "speculative consignment," amounting to about 100 lb. weight of blasting oil, was landed and lodged in a private store. There, on a Sunday afternoon, when no one was in the building, a fearful explosion took place, completely demolishing the stores and damaging many of the adjacent buildings. A Government Commission was appointed to inquire into the affair, and it was decided that the mischief arose from the spontaneous ignition of the aforesaid oil. An occurrence somewhat similar to that at Sydney, but much more dreadful in its effects, took place at San Francisco very recently. Two boxes, "stained with oil," were brought to that city by the Pacific mail steamer. After being taken on shore the case exploded, the neighbourhood was shaken as by an earthquake, and eight human beings were blown into undistinguishable fragments. Nearly a whole block of buildings is said to have been destroyed by this lamentable explosion. But the most terrific illustration of the power possessed by this extraordinary fluid is that which was exhibited in the destruction of the steamer *European*, while unloading at Aspinwall, the Atlantic terminus of the railway which crosses the Isthmus of Panama. The naval court afterwards held on the spot, in accordance with the terms of the Merchant Shipping Act, has traced this disaster to the explosion of seventy cases of glonoine. The effect was frightful. The wharf, 400 feet in length, was obliterated in a moment, a large steamer near at hand was shaken almost to pieces, and scarcely a building in the neighbourhood escaped uninjured. Worse than all, some fifty human beings were instantaneously killed, and it was only by an accident that the loss of life was not still greater. Concerning the power which the merest accident may thus set in exercise, we may remark that glonoine is computed to possess eight times more force than gunpowder, weight for weight, or thirteen times more force, if the comparison be one of bulk. This latter quality renders the new agent peculiarly valuable for blasting purposes, as it saves labour and expense in drilling. Glonoine is also insoluble in water, which renders it specially available for subaqueous explosions; and for all we know it will play an important part in the future of torpedo warfare.

PROFESSOR FAWCETT ON BLINDNESS.

Mr. Fawcett, the blind member for Brighton, was among the speakers at the annual meeting of the Association for Promoting the General Welfare of the Blind, held in London recently. He said that after he was afflicted with blindness, eight years ago, he found that there was a wonderful compensatory power in Nature, and he thought that power would enable him to cling to the same habits, to cherish the same ambition, to indulge the same tastes, and to enjoy the same pleasure as if this affliction had not happened to him. His experience led him to the belief that where a person was afflicted with blindness, the mind became more concentrated, the hearing more acute, the touch more delicate, and, in fact, every other power seemed to acquire new activity. He had never altered his course of reading after his misfortune. He continued from the page of the book at which he left off previous to his getting blind, and enjoyed his old sport of angling as formerly. He enjoyed the grandeur and beauties of Nature as much as ever, and often when in society, when describing some beautiful river, he stopped to think whether he had really seen it, or if it had been described to him. He thought he enjoyed as much happiness as most people, and he believed every blind person would derive equal enjoyment if brought under the same inspiring influences, the same associations, and made to participate as far as possible in the same pleasures which other people enjoyed.

The Halifax Corporation has decided to add another reservoir to the water supply. It will have a capacity of 50,000,000 gallons, and the estimated cost is about £13,000.

The Art of Killing.—"While everything around us," says the *Temps*, "has progressed, the art of killing our fellow-creatures seems alone to have remained immovable during the last century. In the time of Marshal Saxe each man that was killed in battle represented a quantity of bullets equal to his own weight. Notwithstanding the invention of rifled guns, the proportion remains about the same. At Solferino, for example, the Austrians fired 8,400,000 musket shots, while the number of killed among the French was but 2,000, and of the wounded 10,000. Thus a man was hit every 700 shots, and one killed every 4,200."

TIMES OF WANT.

Oh! Mary, they have closed the mill,
The looms are silent now;
And we must stoop with heavy souls
Beneath the rod to bow.
I feel a throbbing in my heart,
A chill within my breast,
And long to lay my weary form
Within the grave to rest.
For life has been a ceaseless strife
With cares that ever grew;
We slaved and starved, and now, alas!
O God! what shall we do?

I've seen thee weep when thou didst think
Thy tears I could not see;
And seen thee put aside thy bread
That baby fed might be.
While oft thou forced a loving smile,
Although thy heart was sore,
And kissed my pale and bloodless cheek,
And bade me grieve no more.
But now thou canst not hide thy tears,
Thy lips, they quiver too,
Thy hand, it trembles in my own—
O God! what shall we do?

Thy fingers, they are thin and worn
With needlework so cheap;
Thy eyes are red, thy brow is cold,
For want of rest and sleep.
Our little infant, fevered, droops,
And soon will be no more—
It had not starved, had I been rich,
But I, alas! am poor.
I wonder if the wealthy great
Would help us if they knew
Our wretched fate. The thought is vain—
O God! what shall we do?

For never shall these lips of mine
A pauper's pittance crave
While I have life, though after death,
I fill a pauper's grave.
My soul grows fierce. Oh! that my voice
Could ring throughout the land,
And breathe the cares, the wants, and fate
Of labour's starving band;
And bid the lords of gold beware,
Lest they like us may sue,
When revolution comes, and cry,
O God! what shall we do?

—"*Songs of Labour.*" *By John Plummer.*

THE NEW STEEL FOR ORDNANCE GUN BARRELS AND TUBES.

At the present period, when, whether with reference to Krupp's cast steel, or Armstrong's elaborately-wrought guns, experiments with heavy ordnance have been conspicuous failures, it is in every respect satisfactory to be able to draw attention to a process of working steel which promises results of the most important character. Thanks to Mr. Bessemer, steel is produced at this day in quantities and in a state which encourage further efforts of industry contemporaneously with a demand for the metal in a condition of the highest possible excellency, more pressing than was ever before known. A process has just been developed in South Staffordshire which is calculated, by a thorough manipulation, to secure from the metal the maximum of strength. The patentees take Bessemer ingots and reheat them. They then not only hammer them right and left, but they do that which hammering on the surface can never accomplish. To form a cylinder, either for a heavy gun or a light rifle, the centre of the mass that has been previously worked under the hammer is condensed by the use of a punch, which is made to move radially from a point equidistant from the extremity. A mandrel is then inserted into this partly-formed mould, and it is further elongated by being passed through rolls, thereby to still more greatly improve the quality of the metal, and to impart to the mould a mathematical accuracy of dimensions, alike internally and externally. Thus six times the amount of work has been put upon the steel than would be possible by any other process; and thereby the maximum of strength has been secured, and a solid tube produced, which must of necessity possess greater strength than any obtained by processes less exhaustive of manipulative operations. John Brown and Company, of Sheffield, have recently been making experiments with the process. The result of these experiments has been that they have succeeded in obtaining the licence for manufacture in this country from the patentees; and they are now engaged in making most ample preparations, with a view to the production of tubes for seven-inch ordnance, hollow, marine, and other shafting, railway axles, locomotive marine tubes, projectiles, and the like. So far as the process relates to the making of gun barrels, it is undoubtedly a great success. The patentees are now rolling gun barrels produced by this method, which have been pronounced superior to any ever before offered to the trade by nine of the first gunmaking firms in Birmingham, to whom they are exclusively supplied in this district. Other, and even more valuable, testimony to the worth of such barrels has been forwarded to the patentees from foreign armouries. We may state that the patentees have taken the requisite steps for securing their invention in the leading countries of the world.

ENGLISH WORK-ROOMS.

The majority of work-rooms are mere lurking-holes of burrowing disease. Not long since, impelled at once by interest and curiosity, I looked into a sort of den behind the shop of a London tailor. In this hole, for it was indeed no more, a number of men, with barely room to ply their implements, sat elbow to elbow and knee to knee. The industrious and respectable employer spent his days betwixt shop and workshop. Only forty, and yet seized with all-devouring phthisis, he is now at rest. Such is the cupidity of some, coupled with the unrelaxing exigencies of trade, that nothing short of the life and marrow of humanity will satisfy them. People adore an idol of more hideous attributes than any worshipped by the New Zealander or yellow Fiji. So feeble becomes the respiration in multitudes of over-tasked, under-fed workmen and workwomen, poor exhausted fragile creatures, condemned habitually to breathe air laden with filthy, irrespirable matters, that they seem hardly able to speak or breathe. Compare, only compare, with such a group of hodmen or labourers, a bevy of rosy, deep-chested Cornish or Scottish fisher-girls. Ah! how great, how immense is the difference! The sonorous period, the lusty carol, rolls without an effort from their lips. They hardly seem of a like race. Yet such as they, and better still than they, might all other men, all other women become.—*MacCormac on Consumption.*

A MODEL STATE.

The great part which the State of Massachusetts has played in the war for the American Union, and the disproportion between the magnitude and population of that State and its influence in the council and action of the whole nation, together with the causes of that influence, form the leading topic in Consul Lonsada's annual report from Boston for the year 1865. All the States of the American Union are self-governing commonwealths—masters of their own actions save as to their federal liabilities; but Massachusetts has always displayed a very marked character of its own. Its area is but 1-376ths of that of the Union, and its population 1,250,000, or only 1-30th of that of the United States. The lead which it has acquired with these slender advantages is due to its enormous moral, intellectual, industrial, and commercial activity. No State contains a greater proportion of cultivated land. Her revenue from agriculture may be put down in round numbers at 25,000,000, and that from manufactures at 150,000,000, irrespective of the extraordinary increase during the war. Her principal port of Boston, admirably screened by islands (now heavily fortified) against the storms of the Atlantic, is accessible to the largest vessels, and her ships, in spite of the small extent of her shore, amount to over 800,000 tons. The ships of all France, with her 600 leagues of coast, hardly exceed this measurement. Her fleet for the whale fishery, chiefly from the port of New Bedford, reaches 150,000 tons, whilst the the rest of the Union barely furnishes 14,000 tons. The great proportion of the United States shipbuilding takes place within her ports, and the year 1865 alone added nearly 100,000 tons to the stock already existing. Amongst her products acknowledged to be the best, and everywhere sought after, are agricultural implements, carriages, harness, sewing machines, and general machinery. Boston itself is a marvel of industry and opulence. Places at which, five years since, vessels were unloading, have been filled up, and a series of palatial mansions and elegant streets occupy the ground. The banks employ a capital of 75,000,000 dollars, and the deposits in 1865, as returned by the savings banks, exceeded 65,000,000 dollars, with the cost of management not exceeding one-third of 1 per cent. per annum, being 20 per cent. less than the cost of managing similar institutions in England, while they are yielding a much larger income.

Many of the manufactures of Massachusetts flourish in virtue of the protection they receive under the customs tariff—in other words, at the expense of the consumer, who is artificially excluded from the best market. But there are others, the prosperity of which rests on the soundest basis, on superiority of manufacturing skill, so incontestable that they successfully enter the foreign market.

Mr. Lousada observes that, "Some of the higher branches of art are successfully competing with foreign importations, such as lawns, ribbons, serges, the more delicate and costly fabrics of wool, cutlery, watches, plate-glass, plated ware, and horse-shoes and horse-shoe nails by machinery. The whipple file, also made by machinery, is a perfect article, and has superseded the English file made by hand. Spool cotton, which was, prior to the war, wholly imported from England, has now found a rival in the Hadley Company at Holyoke, which is eminently successful. The American Watch Company at Waltham, a few miles from Boston, furnish watches, under duties of 10 and 20 per cent., which supply one-sixth of the entire demand of the whole

country, whilst the higher grades rival in quality the best watches of England, and have driven most of them from the market, and met them in successful rivalry in Canada; indeed, the managers boast that, were the home demand not so great, they would be ready to meet English watches in London itself. They are independent of duties. At Springfield, in this State, the manufacture of rifles is well known: it has been carried to 1,000 a day: and the Spencer rifle of Boston—which proved to be the best weapon of the war—has been conducted on a large scale. I may mention incidentally of this weapon that it is loaded with seven cartridges at the breach, is discharged seven times in eleven seconds, and reloaded with seven charges in less time than a common rifle. On trial, it has missed but once in 1,500 times, and it carries a ball accurately 2,000 yards. There are also large foundries at South Boston devoted to casting 8, 10, and 15-inch cannon and Schenkle shell."

Considering that the ever-ready explanation of American prosperity—land for nothing—cannot be offered to account for the welfare of the people of Massachusetts, what shall we say to the following statement?—"Every one from Europe must be struck by the total absence of mendicity in the New England States, and by the exceedingly comfortable clothing that the whole population seem to wear, and it speaks volumes for the government, the education, the employment, and the nourishment of the families in Massachusetts, that less than 1 per cent. of the inhabitants in 1865 were either idiots, deaf and dumb, insane, blind, paupers, or convicts."

Mr. Lousada remarks that there are one or two institutions in Massachusetts which must strike every observant foreigner with admiration. For instance, the inimitable arrangements for public education, by which every family can educate their children almost free of cost; the public libraries, which, in addition to their ample and stately rooms for readers, lend out without charge any of their volumes, and, to the honour of the people, it should be stated that the loss last year on 185,000 books lent for home use was less than one-fourth of 1 per cent. The charities are large and well organised, printed returns being annually published and distributed of all their accounts; and, indeed, the whole of the municipal and state expenditure to the smallest items is also printed, and a copy left at each house, so that a complete popular control exists over any abuse. Owing either to chance, or to the fact that from her wealth Massachusetts has more leisure for study and the fine arts, it is a notorious fact that almost all of the leading minds, acknowledged as such by the whole United States, are natives and inhabitants of this small State, and consequently her influence in the council of the nation is out of all proportion to her territory.

"S. G. O." ON THE EDUCATION OF THE WORKING CLASSES.

At the meeting of the Yorkshire Union of Mechanics' Institutes, at Halifax, the Rev. Lord Sydney Godolphin Osborne—"S. G. O." of the *Times*—delivered an eloquent speech. He said he recollected the day when he was called names, which he might term scurrilous, for suggesting for the benefit of the working classes only one-fiftieth part of what had been said at that day's conference, but that day had gone by. What was now the public opinion respecting the class of whom it was said that education would make them discontented workmen, disloyal subjects, and sceptics in religion? Why, of all the public pets that existed at this moment, they were the greatest. No matter on what side of the House an hon. member might sit, no matter what publication one took up, the working man was the universal pet, however much gentlemen might differ as to how that pet should be treated. The friends of education used to be told that if they went on at the pace they desired, they would make the working man a politician, a student of newspapers, that he would consider himself enabled to give an opinion upon great national political subjects, and aspire to a higher condition than became him; that he would become conceited, discontented, and independent, rather than humble, subservient, and content to go through life still serving—still keeping the same station—a man who lived and died in the same harness, and left children to be yoked to the same work and to the same end. But, after all, how had it proved to be? What was the true touchstone of the conduct of the working men in this country? In days when they were called the "dangerous class"—in days of political agitation or commercial panic, when the distant sound of war seemed almost to roll within one's ears—in days of bitter polemical controversy—the first question was "How will it be if these opinions get loose in the manufacturing districts?" Well, they had got loose, and who was going to tie them up again? Who was going to check the power of the press, or close the door of the reading-room, to forbid the working man considering political subjects? No power could do it, and no one desired it. He could recollect the time when it was said that the working men, of all others, were the greatest dupes of orators—that flatter them, and speak to them of schemes of promotion to heights that they could never be raised to, and a person would gain their sympathy; that they were the most readily duped by what the Americans call "stump oratory;" that of all classes they were the easiest to be led away by fluent speaking, and by appealing to their passions and ignorance. But what was the state of things now? Had such oratory, or the political agitation of the last six or eight weeks, or the effects of such speeches as those of Mr. Gladstone and Mr. Bright, raised one discontented or turbulent spirit? In his younger days it used to be "the dangerous classes of the manufacturing districts," the days of the yeomanry, of special Cabinet Councils, and of fears in Cabinets of those "dangerous working men." But had there, during the late proceedings in Parliament, or during the recent commercial panic, been one single moment of anxiety on the part of the ministers with respect to those "dangerous classes in the North?" Some social, political, and religious knowledge was now at the command of the great mass of the working men; it was at a price within their reach; and, if Mechanics' Institutes were to be closed to-morrow, the tide of intelligence would still flow on. He was at a loss to foresee what would be the result of that high flood; higher powers than theirs would direct it, and it would be enough for them to see that no man should be left in ignorance except through his own neglect. Even at the risk of making the working man a politician, or a divine, or a theologian, or a sharp, clever criticiser of things around him, they were still bound to go on with his education. He would allude to one most delicate question which it might, perhaps, be wiser for him to avoid. For years past his attention had been drawn to the gradual combination of working men into distinct class interests. In the working of their great benefit societies, in the management of their admirable co-operative and building societies, and in no end of social matters, he could see that labour was coming to be considered by those who possessed its power as capital which, in their own interest, they had, like any other man in a free country, a right to increase by any legitimate object, or by any honest and fair means. The vast improvements in our machinery were the world's wonder, and none would deny that they had not yielded great returns for the capital that had been spent on them; the country teemed with proofs of it. Did those great improvements in mere dead plant call for no increase in the skill of him who waited for it? If our means had been increased by the improvement of machinery upon which our operatives waited, let us sympathise with those operatives, should they get a little importance in seeing that their own increase of skill had not met with that increased reward which they might think they were justly entitled to. He believed that when the day came when some happy compromise between capital of mere wealth and capital of mechanical labour should have been arrived at, the manufacturer would really gain, while the condition of the working man would be very much improved. Would the skilled mechanics of the present day be content to go back in the scale of figures? No; and if the present Saturday half-holiday movement was granted in London, would not the mechanics put forth the greater amount of skill and energy which that holiday would afford to him, in order still further to increase his social position, and to elevate himself in society? He believed that in the constant trade disputes that were happening, if, instead of pressure from the one side or pressure from the other, the real friend of the working man would tell him the effect of those proceedings without flattering his prejudices—tell him truths that would be good for him—he believed that those true friends would be met by those men in a spirit that would soon put an end to many of those social disturbances that at present destroyed the just claims of capital, and injured the claims of the capital of labour. He believed that many of the more respectable mechanics were in a far happier condition than some of those around them who seemed to be rolling in wealth; but, taken as a class, he did not believe that, as a whole, the working men were any better or any worse than any other class. He would not magnify the position of one by detracting from the other; and there were in that town especially abundant proofs that masters were not forgetful of their duty. The progress and object of those institutions must be still further to raise the condition of the working man. The whole course of modern legislation was tending in his favour; no party could hold governmental power who would ignore him; and, on the other hand, he hoped he should never see a Government nor a House of Commons that would suffer the whole combined power of the working classes to do one single act of tyranny against a master.

Things Talked About.

We have received from Brisbane, Queensland, the report of a rather remarkable celebration. Two years ago the eight hours system was generally adopted; and on the 15th of March last the second annual celebration of the success of the movement took place. There was a procession of the various trades. The *Brisbane Courier* tells us that "the procession marched in remarkably good order. The tradesmen were preceded by Seal's band, which was engaged for the day. The order of march was the following:—First, there were the masons, wearing a blue ribbon, and carrying their banner of last year. Their motto was, 'Union is strength.' The masons numbered about sixty. The next were the bricklayers, to the number of about 120; their colours were red, white, and blue. The third order was the carpenters, and the banner they carried was specially prepared for the occasion. It is a very handsome one; the emblems of the trade are painted on it in gold letters, and there is also the motto, 'United we stand: divided we fall,' on a crest supported at each side by the figures of a man. The cost of the banner was £40. Their colours were pink and white, and they equalled the bricklayers in number. The fourth body comprised the painters, of whom there were about twenty; colours, green and white. Their banner was a new one, and the motto was, 'Let Brisbane flourish.' Last, came the plasterers, mechanics, and others, in a body consisting of about 150." A steamer had been chartered, and about 400 excursionists, including the wives and children of the men, made a trip to Lytton, a picturesque spot on the shore of the river, where numerous parties were soon formed for various games, dancing, and short trips in sailing boats. In the evening there was a special performance at the theatre, and short addresses were delivered. The committee were able to "point with pride to the number of artisans who are members of the School of Arts, in Queen Street; of the Mechanics' Institutes of South Brisbane and Spring Hill, who devote their surplus time to study; and they assert, without fear of contradiction, that among the artisans of Brisbane are to be found men of talent equal to any who sit in the senate, or those who manage or mismanage affairs in the town council. This advance in the social scale they in a great measure ascribe to the influence of the eight hours system, which, while lessening the hours of labour, gives the artisan greater opportunities for study, of mixing with his family, and encircling himself with domestic ties; thus, in the end, rendering him a better citizen, a better husband, and a better father." A little amusement was created by an address to the ladies of a very gallant character:—"The working men desire to say that, though the hours of labour are necessarily limited to an employer, they have great pleasure in placing the remainder of their time at your service unconditionally."

The growing disposition among the working classes to enjoy their few holidays wisely, and to seize the occasion of visiting places where the mind may gain something as well as the body, is shown in the fact that on Whit-Monday 36,573 persons visited the Zoological Gardens, being the largest number ever admitted on any one day since the gardens were opened to the public. A visitor who enjoyed ample means of observation says, "In this vast concourse of persons, many of whom evidently belonged to the ranks of those who labour hardest for their daily bread, no case of misbehaviour occurred, nor was any injury done to the society's valuable collection of animals." On that same day the British Museum, the Crystal Palace, the Gardens at Kew, the Parks, and every other place of popular resort for recreation was equally well attended; and the police records are actually silent as to any charges of misbehaviour—a splendid testimony to the temperance, good temper, orderly spirit, and real respectability of the working classes of the metropolis.

Losses of life on railways are increasing, not among passengers, but among those men who are servants of the companies. We can scarcely avoid the conclusion that most reprehensible carelessness is displayed by traffic managers, inspectors, and other superior officials, in not adopting some efficient means of protecting porters, platelayers, and others engaged in necessary and most arduous duties. This is not the first time we have alluded to the subject, and we recur to it because numerous fresh instances are recorded in the newspapers. In one case the coroner's jury made a special addition to their verdict. A gang of platelayers were employed in levelling some ballast near the Ludgate station of the London, Chatham, and Dover Railway. While so employed a train approached, and knocked down one poor fellow, who was so frightfully injured that he died in the hospital a few days afterwards. One of the platelayers said, in his evidence, "We have thought of having a man on the look-out, *but we are not allowed to think.*" If a man were kept specially on the look-out, accidents would be prevented. The jury said, in their verdict, "The London, Chatham, and Dover Railway Company ought to have men placed on the look-out while the lives of the workmen on the line are in jeopardy." The public quite agree with the jury on this subject. Men employed on railway work are something more valuable than mere rolling stock.

A somewhat similar tragedy, but even more terrible in its character, occurred in the tunnel of the Metropolitan Railway, near King's Cross. Some platelayers were at work, when two broad-gauge trains (both gauges are laid on the line) were seen approaching in opposite directions. The men, on the alarm being given, threw themselves down, because the distance between the two broad-gauge carriages, when abreast, was, in the six foot, about two feet; but when the men lay down they were supposed to be below the level of the carriage steps, where the distance between the wheels of the two trains was six feet. They were not quick enough. One man, named Winstone, was caught in the wheels of one of the engines, and when it emerged from the tunnel his mangled body, a mass of pulp and blood, was whirling round

with the wheels. Three other men were most seriously injured. The traffic manager endeavoured to show that precautions for safety were adopted; but Dr. Lankester, the coroner, shrewdly remarked that, if that were the case, it was certainly remarkable that four men should have been injured. The jury thought so too, resolved on examining into the matter more closely, and adjourned the inquiry. On the South-Eastern Railway, near Paddock Wood, a platelayer has been decapitated. He was engaged on the line when an engine knocked him down and killed him in an instant. Here, too, it would seem that a great want of proper care was displayed. Sometimes, it must be admitted, fatal consequences arise from the men's own carelessness and indifference to danger, and sometimes from the neglect of their fellow-workmen and signalmen. A young man, an engine-cleaner, has been killed near Reading in consequence of walking along the line as a short cut to the engine-house; and a collision on the North London Railway, at the Shoreditch station, by which an engine-driver was killed, was due to the mistake of a signalman, who had signalled "all clear." He will have to answer at the Old Bailey for his neglect; and if others in a higher position had also to answer charges of "manslaughter," perhaps the expense of keeping a man on the watch would not be objected to.

Depositors in Post-office Savings Banks who may have felt a little puzzled over the proposed appropriation of their deposits to pay off a portion of the National Debt should procure, for a few pence, at the Queen's printers, a return explaining Mr. Gladstone's scheme. They will see that there is not the faintest foundation for any alarm in the matter. Their money will be forthcoming when wanted, and the interest too, and yet a large amount of our national burden will be wiped off. Strange, yet true!

If ever a body of men had a claim upon our sympathy when asking for a reduction of the hours of labour, the journeymen bakers are those men. We hope they will not be left to their own necessarily limited resources in fighting the battle. Money, time, and talent may honourably be devoted to their assistance. At a meeting held a few days since they resolved—"That, in the opinion of this meeting, night-work and the unlimited hours of labour for a fixed remuneration are opposed to the physical, moral, and social interests of the trade, and totally inconsistent with the spirit of the age in which we live; it therefore pledges itself to do all in its power to organise the trade in London, so that on an early day a demand be made upon the employers of labour for altering the system of work in the baking trade, and that the hours for working be fixed from five o'clock in the morning until five o'clock in the afternoon."

From all quarters comes the news of continued and fresh strikes. The men employed in the stables of the Manchester Omnibus Company have struck for an advance of wages, and we regret to say that some violence has been displayed, the perpetrators of which have been fined by the magistrates. The carters of the same town are agitating for short time, and wish to leave off collecting goods after six o'clock in the evening. It is stated that the carters cannot reckon on reaching home for four hours after leaving the warehouse door; and whatever time they cease work at night, they must be at the stables at half-past five o'clock in the morning.

The master engineers and shipbuilders on the Clyde have resolved on a thorough lock-out. This determination, which, they say, has been provoked by the continued demands of the men, may be the beginning of a terrible struggle.

We are pleased to see it announced that the masons' strike in Bristol has terminated, the masters having acceded to the demands of the men.

The rumours of war on the Continent, and the consequent uncertainty of all industrial occupations, are beginning to be sorely felt. The operative classes in Prussia, especially, are ardent advocates of peace, and would resist, heart and soul, if they dared, the demand upon them for military service which is tearing them from their industrial pursuits and converting them into soldiers, while their families are left to perish.

"S. G. O.," by which initials the Rev. Lord Sydney Godolphin Osborne is best known to the public, has made an admirable speech at Halifax, on the occasion of the celebration of the twenty-ninth anniversary of the Yorkshire Union of Mechanics' Institutes. We give the substance of the speech in another column. It will bear reading more than once, and deserves the closest attention of those to whom it was addressed. "S. G. O." never flatters, and never hesitates to point out a defect when he sees one, or enforce a truth when a truth is needed.

Bolton has been enriched, during the past week, by the gift of a public park and a recreation-ground. The park, which is about forty-six acres in extent, has been established under the provisions of the "Public Works Act," and is situated on the Chorley New Road, one of the pleasantest suburbs of Bolton. The recreation-ground is the gift of Alderman Robert Heywood, of Bolton, and is named after him. The occasion was celebrated by a banquet in the evening, after the opening ceremonies had been duly performed, and among the guests were the Earl of Bradford, Mr. W. Gray, M.P., and the Mayors of Manchester, Salford, Burnley, Oldham, and Preston.

Co-operative Intelligence.

Oldham Building and Manufacturing Company, Limited.—This association is composed of working men, to the number of 1,200 shareholders. The shares are £5 each. The company's capital in 1860 was £2,000; this March quarter, 1866, it is £93,000, including loans, which are principally lent by the shareholders. In their last report the directors state, after having allowed £460 0s. 9d. for the reduction of doubtful accounts, there is a balance from trade of £1,180 7s. 11d., which, after paying £512 4s. 4d. for loan interest, leaves £668 3s. 7d. to the credit of profit and loss account, the balance of which now stands at £7,656 9s. 10d. During the quarter considerable progress has been made towards filling the mill with machinery; 44 cards, 50,000 mule spindles, and three pairs of twiners, containing 4,524 spindles, being now at work. An additional steam boiler has been put down, which completes the steam power for the present mill.

Leicester.—The twenty-second quarterly report of the Leicester and Leicestershire Industrial Provident Society, Limited, states that continued prosperity attends their efforts. Their numbers have increased during the quarter by the addition of thirty-three new members. After paying all expenses of management, and 6d. in the pound on *non*-members' purchases, they have realised a net surplus of £73, which will afford a dividend of 1s. in the pound on the members' purchases. The cash account shows the receipts during the quarter to be £1,397 3s. 10d.

The Sheffield Improved Provident Co-operative and Industrial Society, Limited.—The first annual balance-sheet and general statement of the transactions of the society for the past twelve months shows the amount of cash receipts for goods sold, £2,417 15s. 2d., and a net profit (after allowing interest at the rate of 5 per cent. on all paid-up shares, reduction on the fixed stock, commencing the second half-year, at the rate of 5 per cent.) of £82 7s. 6d., in the disposal of which the committee recommended £5 to be laid aside to start a reserve fund; 6d. on the pound for non-members' purchases; 7d. for the first, and 1s. 3d. for the second half-years on members' purchases; leaving a balance of £9 4s. 4d. to meet outstanding cheques.

Clitheroe Equitable Co-operative Industrial Society, Limited.—At a recent meeting of this association, Mr. Richard Aspden, the secretary, presented a report of the rise, present state, and prospects of the society, from which it appeared the society was established four years ago. At the end of the first year its capital amounted to £572 15s. 11d.; goods sold, £3,131 14s. 6½d.; profit, £173 5s. 4½d. The second year, capital, £659 6s. 2d.; goods sold, £3,499 16s. 10d.; profits, £217 2s. 6¾d. The third year, capital, £1,258 5s. 11½d.; goods sold, £4,707 3s. 5d.; profits, £325 4s. 5d. The fourth year, capital, £1,411 14s. 5d.; goods sold, £4,426 12s. 8d.; profits, £261 3s. 4d. There had been a steady accession of members, the present number being 250.

General Information.

CLUBS AND INSTITUTES.

METROPOLITAN DISTRICT ASSOCIATION OF WORKING MEN'S CLUBS AND INSTITUTES.

The committee for organising this association met again on Monday evening, the 14th ult., at the offices of the parent society, 150, Strand, and finally agreed to the following statement of objects, rules, &c., which we give entire, as they may be useful to other district associations:—

"Objects.

"The objects contemplated by this association are:—1. To promote the success of the London Working Men's Clubs and Institutes by co-operation and the cultivation of a brotherly spirit. 2. To make each of them a centre of increased usefulness and good-fellowship. And, 3. To develop the growth of the Club and Institute movement generally in the metropolis.

"Modes of Operation.

"The following are some of the modes in which it is proposed to carry out the above objects:—

"1st. By an interchange of friendly visits between the members of the different clubs, such visits being arranged previously by the committees.

"2nd. By the co-operation of clubs, situated sufficiently near each other, for the establishment of classes, the delivery of lectures, or the holding of elocutionary, musical, and other entertainments.

"3rd. By the arrangement of meetings for social amusement and joint discussions; also for chess, cricket, foot-ball, gymnastic, and other matches; and for competition in recitations, essays, and poetic composition.

"4th. By the interchange of books, scientific and musical instruments, diagrams, and works of art.

"5th. By arranging for flower shows and exhibitions of art and industry at the clubs, as well as for joint excursions, &c.

"Agency.

"A committee, consisting of representatives from each club and institute in union with the association, and of such other persons as they may invite to act with them.

"Rules.

"1. The Committee of the Metropolitan Association of Working Men's Clubs and Institutes shall meet on the second and fourth Friday in each month for the transaction of business, or at such other times, and at such hours, as they may decide on.

"2. At such meetings, the members present shall appoint one of their number to act as chairman of the meeting.

"3. The committee shall appoint a secretary to the association, who shall keep the minutes of their proceedings, conduct the correspondence, and transact the business of the association generally.

"4. The committee shall appoint a treasurer of the association.

"5. Every metropolitan club and institute desiring to be united with the association shall be admitted on the payment of an annual contribution of 5s. to the funds of the association, or such other sum as the committee may from time to time determine, for the purpose of defraying printing, postage, and similar expenditure.

"6. The meetings of the committee shall, with the permission of the council, be held at the offices of the Working Men's Club and Institute Union, or wherever the committee may at any time appoint.

"7. Each representative of a club attending the meetings of the association shall be furnished with the credentials of his appointment by the committee of his club.

"8. Every club in union with the association shall have the power of sending two representatives to the meetings of the committee.

"9. The association shall not in any way interfere with the *independent management* of the clubs in union.

"10. Any club and institute which shall not pay the fee referred to in Rule 5 within one fortnight after the date on which it falls due, or shall not send a representative to the meetings of the association for three months running, shall not be considered to be in union.

"11. It shall be in the power of the committee to add to or to alter these rules from time to time, a fortnight's notice having been previously given of any proposed addition or alteration, by the issue of a circular to all the clubs and institutes in union with the association."

The next meeting of delegates from those London clubs, which may be desirous of enjoying the advantages afforded by friendly co-operation, is to be held

On Friday, the 8th of June, at 150, Strand.*

Tea on the table at seven o'clock; business commences at eight, when A. H. Layard, Esq., M.P., is again expected to preside. The managers and members of clubs are particularly requested to notice the 9th Rule, and to understand that no interference with the individual action and finances of associated clubs is in the slightest degree contemplated by this organisation. It is believed that club committees and secretaries will derive substantial and increasing benefits from the plans for joint action and co-operation now proposed. Mr. Pocklington, the District visiting agent employed by the union, has been appointed honorary secretary to the District Association. Let me earnestly beg the managers of all Working Men's Clubs and Institutes, whether in London or the country, to use every effort for promoting associated action between such of these societies as are sufficiently near in any given district to admit of it. I was greatly in hopes that, as a result of various visits I made the latter part of last year, there would have been district unions of clubs formed in Hampshire and Sussex, Lancashire and Cheshire, Yorkshire, Northumberland and Durham; but at present, the friends who undertook the organisation in each case have proved something like broken reeds. Doubtless, they are all so active and useful already, that their acquaintances leave them no time to carry on other useful enterprises; but then they should find efficient coadjutors or substitutes. Somebody says that this is the secret of all successful "administration."

I should be most happy to furnish any person, applying to me, with printed suggestions both for the plan and objects of the district co-operation which we desire and recommend.—Henry Solly.

150, Strand.

Hope on, Hope Ever!—Most folks are the better for a little encouragement now and then; and we are all of us, I suppose, apt sometimes to grow weary in well-doing. Hence the value of mentioning facts which occur occasionally, showing the value of good men's work, perhaps of good done when the doer had nothing but a dismal conviction on his mind of having utterly failed. My esteemed friend, the chairman of the Executive Committee of our Union, laboured long to maintain in useful existence a Working Men's Club in Brighton, intended especially for that much-tempted and useful class of men yclept flymen and wheel-chairmen. All his efforts, however, proved unavailing, though he aimed especially at making the men feel it was *their* club, and at interesting them individually in its manage-

* This will be instead of the Tea Meeting of Secretaries, hitherto held on the last Thursday in the month.

ment and working. After having spent a large sum of money upon it, he was obliged at last to withdraw his support, and it was closed, most of the members having manifested a culpable degree of indifference, and, I must say, of what seemed like ingratitude. A few days ago, however, Mr. Pratt received the following note, which doubtless illustrates what others have experienced, though they may not have told or written their experience, as this man has happily done, for the encouragement and reward of a benefactor.—Henry Solly.

"3, Cavendish Street, Brighton,
16*th May*, 1866.

"To Hodgson Pratt, Esq.

"Dear Sir,—Just as I had posted my letter to you yesterday, a little incident occurred that I thought would be encouraging to the council of the Club and Institute Union, if at any time they should feel desponding of the work they have taken in hand. I had just commenced to wash my fly when one of our old members of the Flymen's Club came into the yard. I dare say you will remember him: he was a tall man, with hair and whiskers turning grey. He was a constant attendant at the latter part of our existence as a club, and a very attentive listener at the lectures and readings. His name is C—— P——, a hand-chairman. I said to him, 'I have just posted a letter to an old friend of ours, Charles—to Mr. Hodgson Pratt.' 'An old friend of mine, you may well say,' said he; and placing his mouth to my ear, he whispered, 'If it had not been for Mr. Pratt, I should not have had a penny in my pocket; but, thank God, I have now £10 I can call my own.' 'Ah!' I said, 'Charles, how was that?' He said, 'You recollect when Mr. Pratt came forward and took the responsibility of our club on his own shoulders when it was about to be broken up? Well, I had not a penny in my pocket, and nowhere to go to but the public-house. I did not know the value of workmen's clubs then; and, bad as I may be now, what little of good there may be in me now, I date it all from that time.' I replied, 'I suppose you belong to Windsor Street Club now, Charles?' 'Yes,' he said; 'you know the time of the year is now coming on when I shall not be able to attend the club, but I shall continue to pay, for I have felt the advantage myself, and I will do what I can to assist others to do so too.' It did appear to me at the time so like a realisation of the passage from the old Book of Books—'like bread cast upon the waters, it shall be seen again after many days'—that I could not refrain from troubling you with the account of the circumstance. Hoping I have not trespassed on your valuable time by doing so, I remain, faithfully yours, "Joseph Wood, Flyman."

Taunton.—The third annual meeting of the Taunton Working Men's Association was held on the 17th instant. The committee in their report "regret that so few comparatively of the working men of Taunton seem to appreciate the great privileges afforded by the Association; but hope that when the character and variety of the large collection of new books recently added to the library become known, together with the list of newspapers and periodicals always supplied in the reading-rooms, the artisans will enrol themselves in greater numbers, and manifest a deeper interest in an institution specially formed and sustained for their benefit." They reported "that the net proceeds of the Industrial Exhibition which had been promoted and carried out by the members of the Association was £40 5s." The expenditure for the past year had been £53 7s. 0½d., the receipts £77 16s. 10d., leaving a balance in hand of £24 9s. 9½d. T. Meyler, Esq., was re-elected president; the Rev. W. A. Jones, M.A., was elected treasurer; and Mr. H. A. Hammett was re-elected as secretary for the ensning year.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

MR. MAURICE'S MEANING.

To the Editor of the Working Man.

Dear Sir,—Your reviewer of Dr. Maurice's book, entitled the "Workman and the Franchise," would no doubt be able to answer for himself; but if you think it useful, a few words might be said in your correspondence columns in reply of Mr. Rossiter's letter. I had not the happiness, like him, of hearing Mr. Maurice's lectures when delivered at the Working Men's College. I should think it probable that the reviewer never thought of what Mr. Rossiter calls the "oft-recurring complaint that Mr. Maurice is too indefinite in the statement of his opinions." Reading that book on the Franchise, he would concern himself merely with the impressions which the book gave. Anyhow, I, as one who have read the book with a very anxious desire to learn Mr. Maurice's opinions, have felt regret that his own conclusions were not distinctly expressed. Considering upon how many and how lofty subjects Mr. Maurice has written, any one reader must have very wide knowledge indeed to be able so accurately to judge him as to say where he has or where he has not fallen short of "definiteness." I pretend only to give an opinion upon the book now in question. I am thankful for it as it is. It is a distinct contribution to the discussion of the subject—as far as it goes it is good. I should say with the reviewer, that it is a wholesome book; yet, a book which is good as far as it goes, might be still better if it went farther. It arouses curiosity as to what the author thinks, but does not satisfy it. Mr. Rossiter says, "Any one who can follow Mr. Maurice's train of thought, will not, I think, often fail to find a very definite meaning clearly expressed." Does Mr. Rossiter know that nothing is more uncertain than the interpretation of the meaning of an author who does not himself formally express it? Mr. Rossiter admits that the reader may sometimes, though "not often," fail to discern it. Why should the reader be left to fail at all, when the author, by a few words, can save him from that disaster? Mr. Rossiter says, "The reader may find" (in the majority of instances) "a very definite meaning clearly expressed." Now, what is it? Can Mr. Rossiter tell us? A reader may think he knows his author's meaning; but if the author is silent, who is to assure him that he does know it—that he has not failed, and made no mistake? Mr. Rossiter says that Mr. Maurice's "modesty, or his charity, or both combined, prevent him from speaking *ex cathedrâ*." It may be "modesty," but I do not see how it is "charity," to withhold a dogmatic opinion which the reader seeks and desires, and would profit by. The readers who want to know a writer's opinion are commonly persons who can profit by it without their independence of judgment being destroyed. I like authors who are dogmatic. I like authors who, having great opinions, authoritatively avow them. There are authors whom I have the misfortune to read whose opinions I don't want to know, and I am grateful to their "modesty, or their charity, or both combined," when they withhold them. I see quite enough of their capacities of thought not to have the slightest interest or curiosity in knowing what their definite opinions are. But Mr. Maurice is a thinker, and I want to know what *he* thinks. On the question of the franchise he has a right to speak "*ex cathedrâ*," and I wish he would do it.

Mr. Rossiter is not only a pleasant, but a suggestive correspondent; and, if he is of opinion, as he declares he is, that any one may (in most cases) find a "very definite and very clearly-expressed meaning" in Mr. Maurice's book, Mr. Rossiter must have found it, or he could not say so much. Will he, therefore, confer upon many readers less fortunate, the favour of telling us what it is? Mr. Maurice's subject is "The Workman and the Franchise." Now, the questions arise, Upon whom should the right of the suffrage be conferred?—upon all workmen?—and upon workmen only? Is Mr. Maurice in favour of universal suffrage? If so, should women be included in it?—and if not, why not? Should intelligence or property give the right to vote? Should it depend upon industry or intelligence?—or both? If upon intelligence, what kind?—and how should it be ascertained? Mr. Rossiter says Mr. Maurice is not a "legislator;" he is a "philosopher." Then he is philosopher enough to explain what he has written about. If Mr. Maurice is not "legislator" enough to have definite opinions upon these points, how can workmen, whom Mr. Maurice addresses, pretend to have them? Mr. Rossiter tells us Mr. Maurice is a "historian." Then he knows the history of this question. He has formed opinions to no practical purpose unless he sees how they are to be realised. And the working man prates like a child, and no politician regards him, unless he can say what he wants, can show that it is practicable, and can explain how it is practicable. No one knows better than Mr. Maurice how that statesmen in these days (if we except Mr. Gladstone) never take any initiative. Their great policy is to do nothing, and to give good reasons for doing it. All their genius lies in letting things alone; and nothing pleases them better than to deal with men who think they know what they want, but have never thought how they are to get it, and who are unprepared with any answer if the question is put to them.

I am ashamed to write so long a letter in answer to Mr. Rossiter's short one, but this gentleman owes it to the candour of his own admission. The lawyers say they can hang anybody if they can but get a scrap of written paper from him. I have no wish to hang Mr. Rossiter, but we have got his scrap of paper, and on it is written the declaration that Mr. Maurice's meaning is definitely and clearly ascertainable in his book. He who says this must know what the meaning is, or he could not have said so much. I therefore pray Mr. Rossiter to write again, and tell us what it is, on the essential points I have named—the want of information upon which seemed to me to constitute the reviewer's difficulty. Anyhow, they are mine.—I am, &c., One who Wants to Know.

TO CORRESPONDENTS.

Thomas Evans.—Macmillan and Co., London.

W. W.—Your queries are not sufficiently explicit.

Victoria Park.—According to *Notes and Queries*, the last occasion on which an Act of Parliament was vetoed by the Crown was on March 11th, 1707, by Queen Anne.

Lapidary.—The attempt to fix a price for the opal is idle; each opal has its distinctive beauty and charm, and the comparison of weight, all-important in what may be called, by comparison, monotonous gems, is here worthless. Stones for rings or brooches vary from five shillings to £100; and, for specimens of extraordinary distinction, as much as £1,000 has been paid. It is said that £50,000 has been refused for an opal now in the Museum at Vienna. The fire opal has been imitated, but art has failed to produce a copy of the rainbow tints—always varying and always charming—of the precious opal.

Metric.—The absurdities in British weights and measures are numerous and glaring. In Monmouthshire the weight is 80lb. of wheat to the bushel; at Chester, Shrewsbury, and Market Drayton, 75lb.; at Stafford and Wolverhampton, 72lb.; Bristol, Wakefield, and Leeds, 60lb.; in Bideford and Torrington, 70lb.; at Warsall, 66lb.; at Aberystwith, 65lb.; at Carmarthen, 64lb.; at Boston, 63lb.; at Aylesbury, Cirencester, Dorking, Farnham, Petworth, Uxbridge, Midhurst, Oxford, Chichester, Brighton, East Grinstead, and other places, wheat is sold by the load of 5 qrs.; at Hitchin, by the load of 4 or 5 bushels; at Pontefract, by the load of 3 bushels; at Bedford, by the load of 5 bushels; at Stowmarket, &c., the load consists of 488lb.; at Ulverston, the same denomination means 14¼ quarts; at Bridgenorth, wheat is sold by the bag of 11 score; at Much Wenlock, by the bag of 11 score 1lb.; at Ludlow, by the bag of 11 score 10lb.; while in other market towns the bag means as much as 12 score, or as low as 9 score 10lb. At Whitehaven wheat is reckoned per 14 stones; at Nottingham and Grantham, per 36 stones; at Malton and Scarborough, per 40 stones; at Newcastle, Darlington, &c., the boll means 2 bushels; at Carlisle, 3 bushels; and in Scotland, 4 or 6 bushels, according to the kind of grain. At Beccles, and other places, a coom represents 4 bushels. At Preston, &c., we find wheat sold by the windle, or 220lb.; while in Denbighshire, wheat is reckoned by the hobbit of 168lb., barley by the hobbit of 147lb., and oats by the hobbit of 105lb. Barley and oats are also sold at other places by variable measures, which are understood only on the spot. Nor is the absence of uniformity confined to grain alone. Butcher's meat, for instance, is reckoned by the stone of 8lb. and of 14lb.; and occasionally we still observe the "Dutch" stone quoted in reports of some cattle fairs in Scotland. A tod of wool may mean either 28lb., 28½lb., 29lb., or 32lb.; while a stone of the same article has even a greater range in its meaning, according to locality, for it may be read as 12½lb., 14lb., 15lb., 16lb., 16½lb., 17lb., 18lb., 19lb., 24lb., and even 28lb., of 22oz. to the pound. Surely there is enough variety in this case to suit every taste.

J. M. S.—In the trades mentioned by you, the rate of wages varies according to the skill of the worker, but in very few cases is it higher than in this country.

Vulcan.—In reply to your remarks on reading, we would refer to the words of the author of the *Doctor*:—"I have heard of a man who made it a law for himself never to read a book again which had greatly pleased him on a first perusal, lest a second reading should disturb the pleasurable impression which he wished to retain of it. This person must have read only for his amusement, otherwise he would have known that a book is worth little if it deserves to be perused but once; and, moreover, that as the same landscape appears differently at different seasons of the year, at morning and at evening, in bright weather and in cloudy, by moonlight and at noonday, so does the same book produce a very different effect upon the same reader at different times and under different circumstances."

"WORKING MAN" LIFE-BOAT.

We have much pleasure in publishing the first list of subscriptions, not exceeding £1 in amount, to the Working Man Life-Boat Fund, received by us up to the date of our going to press. In compliance with a desire expressed by many of our friends, we postpone until a future day, the date of which will be announced in our next number, the acknowledgment of subscriptions exceeding £1 in amount, so as to afford each competitor an equal chance for the silver medal kindly offered by the committee of the Metropolitan and Provincial Working Classes Industrial Exhibition. Printed subscription lists will be forwarded on application by letter.

	£	s.	d.
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NOTICE.—The readers of the "Working Man" are solicited to bring the following announcement under the notice of any of their friends whom they may think will be interested.

Metropolitan and Provincial

WORKING CLASSES' EXHIBITION and INDUSTRIAL FESTIVAL, to be held at the AGRICULTURAL HALL, London, and opened on SEPTEMBER 3rd, 1866.

TO EXHIBITORS.

Contributions of Skilled Workmanship, or Amateur Productions, will be accepted from all parts of London, the Provinces, Scotland, Ireland, and the Colonies. For the benefit of Provincial Exhibitors, the Railway Companies have liberally offered to return unsold goods free, so that the expense of carriage will be but half the usual charge. Application for space to be made at once.

SPECIAL PRIZES.

The Council of the above Exhibition have much pleasure in announcing that, in addition to the MEDAL OF MERIT, designed for the occasion by J. S. and A. B. WYON, Esqs., the following SPECIAL PRIZES have been liberally offered by the gentlemen named, for the production of Articles to be Exhibited at the Agricultural Hall in September next, namely—

£15 0 0 in Money, or Silver Cup, for the MOST USEFUL INVENTION. Open to all Classes. The Gift of the Directors of the Agricultural Hall Company.

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£5 0 0 in Money, for the best WATER-COLOUR DRAWING. The Gift of J. HARRIS, Esq.

£3 3 0 for the best GOLD BROOCH and EAR-RINGS, of Original Design, which can be sold for £10. (Sale for that sum to be permitted if required.)

£2 2 0 for the best pattern, Birmingham make, GILT BRACELET, BROOCH, and EAR-RINGS, which can be sold for £3 3s. (Sale for that sum to be permitted if required.)

£2 2 0 for the best Specimen of WHITBY JET JEWELLERY.

£2 2 0 in Money, for the best WORKING MODEL of a STEAM-ENGINE. The Gift of W. J. W.

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☞ *Medals will also be awarded for other Articles which may be deemed worthy of especial distinction.*

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600	27	38 12 0	10 2 0	0 16 9
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100	44	7 13 0	2 15 6	0 6 1
50	66	7 2 0	3 14 4	0 17 2

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35	7 6	0 15 0	1 17 6	3 15 0
40	8 9	0 17 6	2 3 9	4 7 6
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A Weekly Record of Social and Industrial Progress.

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The True Nobility of Capital.

To honourably acquire wealth is a great thing; to make a good and noble use of the wealth so obtained is greater still. Too frequently the fortunes acquired in business are thoughtlessly expended in objects which leave out of sight the interests and welfare of those who have assisted in the production of the wealth so acquired. Availing himself of the narrowest interpretation of the few simple laws which regulate the relations between capital and labour, the selfish and covetous wealth-seeker bestows not a thought upon those whose labour has helped to swell his riches. He pays them their stipulated wages, and there the matter terminates: he has nothing more to do with them—the contract is at an end. This, however, is an extremely false and short-sighted view of the question. If capital has its rights, it has, also, its duties, and where those duties are properly fulfilled we hear little of the fierce antagonism which is so frequently found existing between capital and labour. The bitter heart-burnings and violent spirit of animosity, which have at times raged with such intensity throughout the industrial world, have usually taken their rise, not in the inevitable clashing of really diverse interests, but rather from the existence of mutual misunderstandings and the want of genial sympathy—a want occasioned by long-continued estrangements—between employers and employed. The intelligent mechanic, no less than the educated capitalist, knows—and not only knows, but feels—that the interests of capital and labour are identical, and he cannot resist deploring the existence of that broad and yawning social chasm which relentlessly divides the two great sections of industrial society. All the efforts of the modern social philosopher are directed to the purpose of bridging over this fatal gulf, and of uniting the two contending forces; but such a result can only be obtained by the combined action both of masters and men. All honour, then, to those individuals—whether workmen or employers—who have made a step in this direction, especially those capitalists who, like our Crossleys, Salts, Bazleys, Akroyds, and others, have not thought it beneath their dignity to direct their attention to the best means of promoting the comfort and welfare of those who have toiled so long and so successfully for them. It is the proud glory of this country that the number of such men is so large, although it is certainly small compared with what it might be. It is these men who form the true nobility of capital, who have shown the world that there are other objects, far purer and nobler, than mere money-making, on which the sons of fortune may set their hearts. The late William Brown, when he expended so large a portion of his wealth in founding the Liverpool Free Library and Museum, showed a true and earnest appreciation of the duties of capital. He recognised the Divine law which bade the strong to help the weak, and acted accordingly. A gift more useful or more practical than that made by him could not have been devised; but there are other ways in which capital can be made to assist labour, as in the case of Saltaire, that magnificent palace of industry, where the social and physical condition of the employed forms the true eulogium of the employer. Again, there is the example of Samuel Morley, whose portrait adorns our columns this week. Mr. Morley may fairly be said to represent the new class of merchant capitalists, the number of whom are constantly increasing. There are few practical movements, having for their aim the promotion of the happiness and welfare of the working classes, which he has not assisted in some shape or another. The Temperance cause is considerably beholden to him for much of his sympathy and help; and in the south of London his name has become treasured by the artisan population as that of one who is always ready to assist in any practical manner the efforts of his poorer brethren to ameliorate their condition. The details of his life are few, and comparatively uninteresting, apart from his connection with the cause of social progress. He was the youngest son of the late John Morley, Esq., and was born in 1809. In 1841 he married Rebekah Maria, daughter of Samuel Hope, Esq., of Liverpool. In 1865 he contested the borough of Nottingham, when he was returned at the head of the poll; but during the present year he was unseated, in consequence of bribery having been committed, although without his knowledge or sanction, by some indiscreet persons acting in his behalf. As the head of a large business establishment in the City of London, Mr. Morley has taken it upon himself to set an example to his brother employers, by exerting himself to promote in every possible manner the welfare of those employed by him. The Early Closing movement, and kindred efforts for improving the condition of our workers, have found in him a firm and unfaltering advocate. He has also subscribed largely for religious purposes, principally in connection with the Congregationalists, of which body he is a member. As a magistrate for the county of Middlesex, Mr. Morley has proved assiduous and impartial in the discharge of his duties, gaining the confidence and esteem of his brother magistrates. The success of the two South London Working Classes' Exhibitions was attributable in no small degree to the liberal and ready manner in which Mr. Morley came forward for the purpose of guaranteeing the promoters—principally working men—against loss, a fact still gratefully borne in mind by the artisans of South London, with whom the honoured name of Samuel Morley is deservedly popular. Well may the country feel proud of such men as Samuel Morley. It is to such thoughtful, large-hearted, and noble-minded individuals that the cause of social progress owes so much. Had we more of such men the raging fires of class jealousy which yet linger in the hearts of many of those born to a life of hardship and toil would disappear, and a more kindly and unrestrained degree of intercourse be found subsisting between the capitalist and labouring classes of the community. But this will yet be. The true nobility of labour and the true nobility of capital will, at no distant period, insensibly unite with each other, and become the all-powerful lever which is destined to achieve in this country the solution of the long-vexed question as to the best means of bringing the various classes of the community into harmonious relationship with each other. This is the great and glorious work of the future; the task not only of ourselves, but of our children. As one of our poets has earnestly sung—

SAMUEL MORLEY, ESQ.
(*From a Photograph by John Burton and Sons, Leicester.*)

"Far more it imports men to know,
To feel, to prove each other's worth,
Than on that fame their thoughts bestow,
To which the past has given birth—
Call forth the *living* spirit's powers,
And use them for this world of ours!

"And let the good be named 'The Good;'
The true, 'The True;' the brave, 'The Brave'—
Titles not bought and sold for blood
Like those our war-girt monarchs gave—
And let the just be still 'The Just,'
So men shall know wherein they trust."

ONLY one-eighth of the great State of Illinois is yet under cultivation.

The Postmaster-General.

There is no general whose command is looked upon with so much satisfaction by the public as that of the Postmaster-General. His plans are those of progress, not destruction; and he is the only commander whose army is productive. Instead of being the instrument of new burdens upon the people—as naval and military commanders invariably prove to be, in spite of themselves, and by the costly and destructive nature of their operations—the Postmaster-General, filling a happier office, and exercising a beneficent command, finds the means of augmenting the national revenue. Yet he, too, makes war, but it is upon ignorance. No agency ever devised has assisted more in the diffusion of knowledge than the Post-office. The schoolmaster teaches the art of correspondence, the Postmaster-General devises means for circulating it. The printing-press was never half so fruitful in effects of good until wise measures were adopted at the Post-office for carrying its weekly, and indeed hourly, productions over the world. The late Mr. W. H. Ashurst, the father of the present solicitor of the Post-office, united with Sir Rowland Hill to promote the system of penny postage, and afterwards the book-post system, with the object of diffusing knowledge in the interest of the working class. Railways were in their infancy when these ideas were first urged. It was very early to foresee, and it implied very great shrewdness to prove, that the plan of cheap diffusion would answer as a pecuniary speculation. There is little doubt that what has been termed an ocean penny postage would prove in time equally productive. It probably awaits some improvements in ship-building and steam navigation to render it possible, which will come in due course. Its effect upon human life and international intercourse is incalculable. A penny postage to all nations would render the world one family, in a way exceeding dreams of poesy. Working men could then communicate with their brethren all the world over. Facts about trade, wages, schemes of improvement, of which no use is ever made, of which working men live and die and never once hear, would then be circulated every few weeks throughout the world. International and industrial exhibitions, now got up only at intervals of years with great cost and difficulty, would become frequent, economical, and easy.

The Post-office system, which has grown marvellously, is extending itself—or, rather, the sagacity of the Postmaster-General and his advisers and assistants, is yearly extending it. The Postmaster-General has just presented to Parliament his twelfth report of the operations conducted by his command.

For some years an addition of about 400 per annum has been made to the number of letter receptacles, but in 1865 no less than 616 additional receptacles "were," says the report, "brought into use." Why not say established? "Brought into use" seems to imply that the receptacles were previously in existence, and only now made use of. The familiar term "letter-box" seems discarded, and "receptacles" takes its place. Perhaps, strictly speaking, there are no "letter-boxes" now, if ever there were. Letter-bags there may have been, and are still, but unless boxes have every variety of shape—including the hole in the wall, the sack tied to it, or basket put under it—"receptacle" is, no doubt, a more generic, apt, and comprehensive term.

In towns, as every one knows, post deliveries are free; but in country districts a charge is made for delivery beyond the postal range. During the year 1865, 437 new "free deliveries" have been established where none existed before; 182 *additional* free deliveries have been put into operation; and in 111 places free deliveries have been *extended*. Night and day mails *from* London have been extended to 410 new towns, and 266 new towns have now night and day mails *to* London. The increase of mails to London is considerable. Two new towns have seven daily mails to London. Mails have been accelerated, so that vast and distant districts obtain their letters two hours earlier than in 1864, and are enabled to dispatch replies half an hour later. In remote parts of Scotland, where there was postal communication only three days a week, there are now deliveries six days a week.

In London, as our readers are aware, there exist postal districts, and letters are marked N., N.W., E., E.C., &c., meaning North, North-West, East, East-Central Districts, which enables a more rapid assortment and delivery of letters to be made. The Postmaster is extending this plan to large towns, Liverpool being one. A year ago it required thirty-eight hours for two letters and one reply to pass between Jones and Smith. Thus, if Jones offered to sell a table to Smith for £10, and Smith wrote back and said he would give £8, if his offer was accepted at once, it took thirty-eight hours to complete the transaction. By the new arrangement of district deliveries in Liverpool, the same transaction can be effected in thirty-three hours. In 1863, one letter and one reply to it might take twenty-four hours; now it can be effected, at the most, in seventeen. The average time was nineteen hours, it is now only eleven. The shortest time was eight and a half hours, it is now only five hours. Every one having to write on matters of business or family interest can estimate the value of the time thus saved.

The benefit is shown in a striking way. Under the operation of the new system the local letters have increased half a million per year in the Liverpool district alone.

The general increase of letters, books, newspapers, and parcels sent through the post is something marvellous. In 1863, letters increased 36,000,000; books and newspapers augmented 2,000,000. In 1864, letters increased 36,000,000 more; books and newspapers 6,500,000; and samples and patterns 625,000. In 1865, letters increased again 41,000,000; books and newspapers, nearly 2,000,000; and samples and patterns, 660,000. Last year the gross total of articles sent through the Post-office rose to—

Letters	720,460,000
Books and newspapers . . .	97,250,000
Samples and patterns . . .	1,280,000
In all	818,990,000

The kind of articles sent now through the Post-office annually is something incredible. They included, in 1865, 59,000 samples of tea, 47 carpets, 5 samples of oil, 563 shirts, 207 pieces of iron, 4 weighing machines, 20 samples of preserved meat, 5 felt hats, 1 cricket ball, 1 bell, 28 pieces of Atlantic cable, 250 Pharaoh's serpents, 1 opera glass, 13 samples of grease. All sorts of articles conceivable, excepting live animals—and they will doubtless go before long—have been sent through the Post-office.

The increase of money-order offices, the development of Post-office savings banks and insurance, form very remarkable topics in the Postmaster-General's twelfth report. The financial result is quite in keeping with the wonderful facts of the departments noticed. From 1855 to 1860 the Post-office yielded half a million of revenue. During the five years from 1860 to 1865 it averaged one million a year gained for the State. Indeed, during 1865 the money earned by Lord Stanley of Alderley, the Postmaster-General, was close upon one million and a half. What is of yet more importance is, that his lordship is of opinion that the revenue of the Post-office may be indefinitely increased, and that, if the prosperity of the country is maintained, the Post-office may, in a few years, yield a net revenue equal to the produce of the income-tax. This is certainly a consummation devoutly to be wished. Thus, we may have Chancellors of the Exchequer one day who will see their way to raising a revenue without taxation. At present, our army and navy and million of paupers lie a dead weight upon the country. Can the genius of no political economist contrive to make them productive? Surely, something is possible in the direction of self-support, if not of profitable production. It would be well to place them successively under the command of Lord Stanley of Alderley.

Something about Coal.—From information collected at the Museum of Practical Geology, it would seem that, last year, about 96,000,000 tons of coal were raised. It would probably be safe to add to the number at least 20,000,000 more tons for waste; or say, in round numbers, that we are now raising about 120,000,000 tons yearly. In 1860, the quantity raised was 80,000,000 tons; and in 1856, about 66,600,000 tons. These numbers are so large, that it is difficult to form an accurate conception of what they really mean. *With 100,000,000 tons, a girdle of coal three feet wide and about seven high might be put round the earth.—Quarterly Review.*

Grievances of Ploughmen and Rural Labourers.

BY JAMES BEGG, D.D.

IMPERFECT COTTAGE ARRANGEMENTS.

The recent unexpected combination of ploughmen in certain districts, to secure an advance of wages, has already been productive of fruit. In addition to a pretty full discussion of their circumstances and claims in the country generally, at the last Haddington hiring market, the ploughman for whom cows are not kept (of which more afterwards) received a general advance of from £1 to £2 a year each. The agitation has, on the whole, been conducted and met in a very good spirit, and no doubt is yet destined to be productive of still greater good.

One great difficulty in understanding such an agitation, consists in the variety of ways in which ploughmen and farm labourers are paid, and especially the extent to which they are paid—not in money, but in kind. From Lord Shaftesbury's letter to the *Times* on the subject of the Dorsetshire labourers, as well as from all the information that can be gathered on the subject, it is evident that this state of things is all but universal. At a meeting of Midlothian ploughmen, held at Davidson's Mains, near Edinburgh, and reported in the *Daily Review* of December 29th, 1865, Mr. Thomson, of Corstorphine, the chairman, gave the following account of the ploughman's wages in that district, with his own idea of the causes which prevented their increase. The statement is worth reading, and gives rather a different theory of the operation of gratuities from that which we have lately seen. He said:—

We have on an average £22 a year in wages. Some have more than this, and some have less. We have also six and a half bows of meal, four bows of potatoes, coals driven, and a free house. Now, with £22, taking the meal at £2 per load, that is £28 10s.; the potatoes, at 10s. per boll, is £2 more, making £30 10s. Then we have £3 for house-rent, which comes to £33 10s., and 10s. for coals makes the whole, perhaps, £34. So that we have scarcely 13s. 1d. per week. Now, gentlemen, I have not understated our case, and I think, if you take a right average, it will stand 1s. less, or 12s. per week. Now, take a look and see how other classes of workmen in this part of the country are paid. Take railway companies, shipping companies, and mill men, and you will find that on an average they have from 15s. to 20s. per week, and they work ten hours a day for six days in the week; while we have only 12s. a week, and work at least twelve hours every day, and at least three hours every Sunday; so that we are at least 2s. below a common labourer. But let us see if we cannot find the cause of this oppression. We do not consult one another. We work too much in the dark. We do not know each other's minds, whereas by meetings of this kind we know what we are to ask. By helping one another we bring combination against combination, and thereby gain a position we would never attain by remaining single. There is still another cause which I would like to say a few words about; that is, there are some employers who are in the habit of giving presents to their men. It is the custom amongst some masters to kill a pig or two, according to the number of their men, and to divide it among them; likewise pickles of wheat now and then, to make scones of. Now you will say that that cannot hurt us; but it does hurt us—ay, and more than we are aware of. Those who get it will not ask up their wages, and for this reason, that they are, perhaps, far better than if they were to get all we ask for; so that we lose their support, and the masters boast of their cheap men, while in reality they are paying far more than their neighbours. They keep down wages, and give in a present what might be given as wages.

There is, no doubt, a great deal of truth in what the *Times* urges in regard to the amount of practical comfort often secured by this mode of payment in kind; but, on the other hand, the operation of the system ought, undoubtedly, to be limited, and, if possible, reduced to something like uniformity, so that to calculate wages would not only be possible, but easy. There are certain things—as, for example, a good cottage and garden, with the cartage of coals and a supply of milk—which might always be reckoned as part of the wages of ploughmen and agricultural labourers, and might be universal; but if we proceed much farther, disputes in regard to the quality and value of the agricultural produce are apt to arise between giver and receiver; bad blood is engendered, and the whole question is apt to be involved in uncertainty and confusion. A certain definite payment in money, at short

terms, with a few other stipulations absolutely necessary, would reduce the problem to perfect simplicity and uniformity, and if the present agitation leads to this result, it will secure a great advantage to all parties.

By all means let the ploughmen and agricultural labourers sell their labour, which is their only capital, at its full and fair value. Upon this general aspect of the question, we hold that the ground is clear, and we do not at present dwell upon it. But there is one feature of the case which we deem of special importance, viz., the ploughman's home; and we are confident that one of the first and most essential improvements in the state of our agricultural population is to secure a uniform set of roomy and comfortable cottages, with gardens, in connection with every farming establishment. The state of the houses of agricultural labourers is often at present disgraceful. We propose to point out some of the forms of hardship and evil connected with this department of the subject—connected with imperfect cottage arrangements — the bothy and farm kitchen systems, the bondage system, and otherwise. At present, we shall confine our attention to the first of these.

It has often been remarked as singular, that the progress of agriculture has not only not always carried along with it as a fixed result the elevation of rustic comfort, but that, in proportion as farming has improved, as rents have increased, and cattle become more comfortable, the farm labourer has sometimes sunk into deeper social degradation. The poet Burns, who had himself been a ploughman on the small farms of the west of Scotland, where the farmer often holds his own plough, was astonished to find, when he came to the palatial farming establishments of the Lothians, that the ploughman, although, perhaps, more perfect in his work, and certainly in a much richer district, had sunk into a much lower social position. The county of Norfolk represents, probably, as good farming as any in England, and was amongst the earliest districts in the south to start in the race of improvement; but it is from this county that, probably, amongst the loudest complaints have come in regard to the social degradation of the peasantry.

The defects which exist in connection with rural cottages may be summed up under several heads:—

The cottages themselves are sometimes very imperfect. Many of them have only one apartment. By an easy adaptation of our census schedules, the extent of this evil could easily be ascertained every ten years, and I am certain it is very general. Till I took possession of my former charge as Minister of Liberton, in 1835, I had scarcely ever seen a house with only one apartment. In the west of Scotland, where my youth was spent, the poorest cottages had almost invariably at least two apartments, called, locally, "a but and a ben." I was not a little shocked to find the case so totally different in my new locality—to find persons often ill of infectious diseases, and yet no means of separation; to find a dead body sometimes in the apartment in which the humble inhabitants were partaking of their frugal meal. It was easy to conjecture, besides, that many other evil moral results must spring from such a state of things, so fitted to degrade the mind and to blunt all moral feeling. And yet this state of things was at that time all but universal in one of the best cultivated and highest rented districts in the United Kingdom. I am happy to say that partly, no doubt, as the result of considerable exposition and effort, a wide change has since taken place, and there are now few ploughmen's houses in that parish which have not two or three apartments. But the very same state of matters still continues in many other districts. Some cottages, besides, are damp and unhealthy. I remember when visiting, a few years ago, the new cottages of Lord Aberdeen in the north, to have seen a foundation which had been dug out for a cottage, but which his lordship had humanely rejected. It was a low, damp place, and probably regarded as of no practical use; but the rejected foundation was standing full of water, indicating plainly what the house would have been. You often see, in the older cottages, the black or green damp climbing half-way up the wall, the floor being often also considerably below the level of the surrounding earth. The result of this is that rheumatism and other diseases, notwithstanding his healthy out-door employment, often make the poor ploughman a bent and broken-down old man in middle life. Any place, in short, however unsuitable, is sometimes reckoned good enough as the site of a ploughman's cottage, and the sanitary science of modern times is sometimes little known or regarded. Many of the older cottages are, for the sake of economy, made without ceilings, and the ploughman is obliged to protect himself from the cold by means of canvas and other appliances. Some of the older ploughmen have told me, indeed, that at one time many of their houses had neither doors nor windows. The cottage consisted, sometimes, simply of four bare walls, with a roof, and the ploughman was required to bring his doors and windows along with his other furniture. Some cottages, again, have no gardens, or very small ones. A rood of land is a great advantage in the country to a ploughman or labourer with a family, both as affording an opportunity of spending his leisure hours innocently and to advantage, and of securing a supply of wholesome vegetables, which cannot otherwise be bought. Some cottages have no supply of good water, or a very imperfect supply. It is of great importance, as we have already said, to have cottages placed in a dry situation, and with a southern exposure; but it is also most important, for health and cleanliness, to have a copious supply of good pure water.

These are only some of the more prominent evils connected often with the cottages themselves. No doubt much has been accomplished of late years in the way of arousing public attention to the importance and urgency of the question, and some proprietors have shown a noble example in the erection of admirable cottages. These men deserve the utmost credit for what they have done, and to this part of the subject we shall advert again. But a vast work in this direction remains yet to be accomplished. The means of effecting this have yet to be decided upon; meanwhile, men's thoughts have been turned to the consideration of the question, and it cannot be long before a solution of the vexed problem will be found.

Self Help.

"As steady application to work is the healthiest training for every individual, so is it the best discipline of a state. Honourable industry travels the same road with duty; and Providence has closely linked both with happiness. 'The gods,' says the poet, 'have placed labour and toil on the way leading to the Elysian fields.' Certain it is, that no bread eaten by man is so sweet as that earned by his own labour, whether bodily or mental. By labour the earth has been subdued, and man redeemed from barbarism; nor has a single step in civilisation been made without it. Labour is not only a necessity and a duty, but a blessing: only the idler feels it to be a curse. The duty of work is written on the thews and muscles of the limbs, the mechanism of the hand, the nerves and lobes of the brain—the sum of whose healthy action is satisfaction and enjoyment. In the school of labour also is taught the best practical wisdom; nor is a life of manual employment incompatible with high mental culture." Thus writes Mr. Smiles, in his new edition of "Self Help," a work which ought to be found in every working-class library, forming, as it does, a stirring record of the feats which have been accomplished by the exercise of indomitable perseverance and unfaltering earnestness. The lesson to be learned from the book is, that there is no position so obscure, or station so lowly, but that a man can rise from them, if he so will it, to better things. Mr. Smiles gives several instances of this:—"Among those who have given the greatest impulse to the sublime science of astronomy, we find Copernicus, the son of a Polish baker; Kepler, the son of a German public-house keeper, and himself *garçon de cabaret;* d'Alembert, a foundling picked up one winter's night on the steps of the church of St. Jean le Rond, at Paris, and brought up by the wife of a glazier; and Newton and Laplace, the one the son of a small freeholder near Grantham, the other the son of a poor peasant of Beaumont-en-Auge, near Honfleur. Notwithstanding their comparatively humble circumstances in early life, these distinguished men achieved a solid and enduring reputation by the exercise of their genius, which all the wealth in the world could not have purchased. The very possession of wealth might, indeed, have proved an obstacle greater even than the slender means to which they were born. The father of Lagrange, the astronomer and mathematician, held the office of Treasurer of War at Turin; but having ruined himself by speculations, his family were reduced to poverty. To this circumstance Lagrange was, in after life, accustomed partly to attribute his own fame and happiness. 'Had I been rich,' said he, 'I should probably not have become a mathematician.'" Again, take the case of the late Mr. Heathcote, formerly M.P. for Tiverton, the inventor of the bobbin-net machine:—"When a little over twenty-one years of age, Heathcote married, and went to Nottingham in search of work. He there found employment as a smith and 'setter-up' of hosiery and warp-frames. He also continued to pursue the subject on which his mind had before been occupied, and laboured to compass the contrivance of a twist traverse-net machine. He first studied the art of making the Buckingham or pillow-lace by hand, with the object of effecting the same motions by mechanical means. It was a long and laborious task, requiring the exercise of great perseverance and no little ingenuity. During this time his wife was kept in almost as great anxiety as himself. She well knew of his struggles and difficulties; and she began to feel the pressure of poverty on her household; for while he was labouring at his invention he was under the necessity, occasionally, of laying aside the work that brought in the weekly wage. In years long after, when all difficulties had been successfully overcome, the conversation which took place between husband and wife, one eventful Saturday evening, was vividly remembered:—'Well, John,' said the anxious wife, looking in her husband's face, 'will it work?' 'No, Anne,' was the sad answer; 'I have had to take it all in pieces again.' Though he could still speak hopefully and cheerfully, his poor wife could restrain her feelings no longer, but sat down and cried bitterly. She had, however, only a few more weeks to wait; for success, long laboured for and richly deserved, came at last; and a proud and happy man was John Heathcote when he brought home the first narrow strip of bobbin-net made by his machine, and placed it in the hands of his wife."

The true self-helper is not deterred by failure. As Mr. Smiles justly observes:—"We learn wisdom from failure much more than from success. We often discover what *will* do, by finding out what will not do; and probably he who never made a mistake, never made a discovery. It was the failure in the attempt to make a sucking-pump act, when the working bucket was more than thirty-three feet above the surface of the water to be raised, that led observant men to study the law of atmospheric pressure, and opened a new field of research to the genius of Galileo, Torrecelli, and Boyle. John Hunter used to remark that the art of surgery would not advance until professional men had the courage to publish their failures as well as their successes. Watt, the engineer, said of all things most wanted in mechanical engineering was a history of failures. "We want," he said, "a book of blots." When Sir Humphry Davy was once shown a dexterously manipulated experiment, he said, "I thank God I was not made a dexterous manipulator; for the most important of my discoveries have been suggested to me by failures." Another distinguished investigator in physical science has left it on record that, whenever in the course of his researches he encountered an apparently insurmountable obstacle, he generally found himself on the brink of some discovery." Concerning a well-known common error, Mr. Smiles tells us that:—"It has been a favourite fallacy with dunces in all times, that men of genius are unfitted for business, as well as that business occupations unfit men for the pursuits of genius. The unhappy youth who committed suicide a few years since because he had been 'born to be a man and condemned to be a grocer,' proved by the act that his soul was not equal even to the dignity of grocery. For it is not the calling that degrades the man, but the man that degrades the calling. All work that brings honest gain is honourable, whether it be of hand or mind. The fingers may be soiled, yet the heart remain pure; for it is not material so much as moral dirt that defiles: greed far more than grime, and vice than verdigris. The greatest have not disdained to labour honestly and usefully for a living, though at the same time aiming after higher things. Thales, the first of the seven sages, Solon, the second founder of Athens,

and Hyperates, the mathematician, were all traders. Plato, called the Divine, by reason of the excellence of his wisdom, defrayed his travelling expenses in Egypt by the profits derived from the oil which he sold during his journey. Spinoza maintained himself by polishing glasses while he pursued his philosophical investigations. Linnæus, the great botanist, prosecuted his studies while hammering leather and making shoes. Shakespeare was the successful manager of a theatre—perhaps priding himself more upon his practical qualities in that capacity than on his writing of plays and poetry. Pope was of opinion that Shakespeare's principal object in cultivating literature was to secure an honest independence. Indeed, he seems to have been altogether indifferent to literary reputation. It is not known that he superintended the publication of a single play, or even sanctioned the printing of one; and the chronology of his writings is still a mystery. It is certain, however, that he prospered in his business, and realised sufficient to enable him to retire upon a competency to his native town of Stratford-upon-Avon." These are lessons upon which working men should carefully ponder; for their real deliverance from the evils, both social and physical, which afflict them is to be found in the proper application of the principles of the world-old doctrine, that God helps those who help themselves.

Landlord and Tenant.

Almost every person must occupy one or other of these relations at some period of life, but comparatively few—among working men especially — are sufficiently acquainted with the legal rules by which those relations are governed. We propose to give, in one or two papers, the substance of the English law respecting landlord and tenant of house or apartments; and, while as brief as possible, we shall endeavour to make the outline of practical utility to our readers.

The first step in the relationship is, of course, the letting and taking of a house; and as to this, it is a rule of law that the house is let for a year, and the tenancy is an annual one, unless there is an agreement to the contrary. Working men, in most cases, do not occupy as yearly tenants, but by the week, month, or quarter, as may be arranged with the landlord; but as the rules applicable to all tenancies are, in the main, the same, we shall treat more particularly of the tenancy especially recognised by the law—that from year to year.

THE AGREEMENT.

It is always advisable, in the interest of both parties, that there should be an agreement in writing as to the terms of the tenancy. In the case of yearly occupation, this agreement should take something like the following form:—

Memorandum of an Undertaking entered into this day of , between A B, of , and C D, of as follows:—

The said A B doth hereby let unto the said C D a dwelling-house, situate in , in the parish of , for the term of one year certain, and so on from year to year, until half a year's notice to quit be given by or to either party, at the yearly rent of pounds, payable quarterly, the tenancy to commence on next.

And the said A B doth undertake to pay the land-tax, the property-tax, and the sewer-rate, and to keep the said house in all necessary repair, so long as the said C D shall continue therein; and the said C D doth undertake to take the said house of A B for the before-mentioned term and rent, and to pay all taxes, except those on land, or property, and the sewer-rate, and to observe the other conditions aforesaid.

Witness our hands this day of

But, in some cases, the landlord agrees to pay all the rates and taxes, and this should be expressed in the agreement as follows:—

And the said A B doth undertake to pay all rates and taxes, of whatever nature or kind, chargeable on the said house and premises, and to keep the said house in all necessary repair, &c.

It occasionally happens that the clause relating to the sewer-rate is omitted from the agreement, and the payment of that rate then falls on the tenant; but ground-rent, land-tax, and property-tax are by law chargeable upon the landlord, unless the tenant undertakes to pay "all taxes," when the landlord is burdened with the property-tax alone. In ordinary cases, the ground-rent, &c., if not paid by the landlord, may be claimed of the tenant, but he is then at liberty to deduct the amount out of the rent, on his next payment to the landlord.

With regard to the local rates, the tenant is only liable for that portion of them which becomes due under his actual occupation; and arrears left by a previous tenant cannot legally be recovered from the last comer. But, to save trouble, it is always best to have the landlord's indemnification against back rates and taxes, and this should be placed in writing as follows:—

I, A B, landlord of the house and premises situate , now about to be taken and occupied by C D, do hereby agree to indemnify the said C D from the payment of any rent, rates, or taxes in arrear, prior to the day on which his said tenancy commences.

PAYMENT OF RENT.

Rent usually becomes due only at the end of the complete term for which the house has been taken, say month, quarter, or year; but in yearly occupation it is customary to insert in the agreement the clause above given as to quarterly payments, and the rent is generally payable on the quarter days—Lady Day, March 25; Midsummer Day, June 24; Michaelmas Day, September 29; and Christmas Day, December 25. Rent is due at the middle of the day when the stipulated term is complete; but while the tenant remains in occupation the landlord is not allowed to take proceedings to recover until the day following.

Whatever may happen to the house—should it even be burnt down or blown down—the tenant is still liable to the landlord for the rent, unless he has protected himself against such a contingency by special agreement: and in the case supposed, there is nothing in law to compel the landlord to restore the house to a habitable condition; but the tenancy, as before, can only be terminated by proper notice to quit.

Rent should be claimed by the landlord in person; or if by an agent, by one either producing the landlord's written instructions to receive, or well known as acting on his behalf. Receipts for those taxes which properly belong to the landlord, but which may have been paid by the tenant on demand, are legal tender to the landlord in whole or part payment of his rent; but, as a rule, payment should be made in the current coin of the realm, or by Bank of England note; and the landlord is justified in refusing to accept payment by cheque.

NOTICE TO QUIT.

In the absence of special agreement, a yearly tenancy can be terminated only on the delivery of six months' notice, that notice to expire at the precise period at which the tenant entered on his occupation. Thus, if he enter on Midsummer-day, he must give his notice on or before Christmas Day, in order to be entitled to leave on the Midsummer Day following. The notice should be in writing, and take something like the following form:—

I hereby give you notice that, on or before the day of next, I shall quit and deliver up possession of the house and premises I now hold of you, situate at in the parish of

The date of the delivery of notice, with the tenant's signature and that of a witness, should follow. The landlord's notice to the tenant should be given in similar form. The notice to quit from the tenant may be served upon the landlord by delivery either on or off his premises; but that from the landlord to the tenant should be served upon the premises in occupation. There is no necessity to serve the notice before mid-day—at any convenient time on the proper day will suffice.

In shorter terms of tenancy than that for a year the same rules as to serving notice apply; but the proper term of notice is usually that at which the periodical payments of rent become due a week's notice when the payment is by the week, a month's notice when the payment is monthly, and so on. But the notice given must be from the actual expiration of one period to the end of the following term; for instance, in monthly tenancy, notice must be given at or before the end of the month, to leave at the close of the complete month following. The tenant cannot resign his occupation by a month's notice delivered in the middle of the term.

We must reserve the necessary particulars as to the landlord's remedy for non-payment of rent, and the law as to sub-letting, lodgers, &c., for a future paper.

ELECTROTYPING.—SOLDERING WITH THE BLOW-PIPE.

*Electrotyping.**

Stamped work is executed by means of a stamping-machine, which method is generally adopted in England in producing the various articles to which electro-gilding and silvering are applied. In France, however, the lathe is preferred, as being quicker and more economical.

When an article is not required to be multiplied a sufficient number of times to admit of the expense of a matrix, it is hammered out by men skilled in the practice.

The *furniture* is produced in the following manner:—From models made in wax or plaster a first pattern is cast in iron, which a skilful chaser finishes according to the degree of perfection desired. This is called the model. It passes into the hands of the moulder, who prepares moulds in sand, into which the alloy is poured from crucibles. Thus obtained, the model is cleaned and chased by special workmen. Chasing is a very expensive work, which imparts more or less excellence to the finished article. To abridge this labour, and obtain objects of great perfection, two methods are employed.

* Continued from page 345.

The first can be employed only for moulded work—this is stamping. It is performed with steel matrices and the stamping-machine.

The second is by electrotyping; by which articles of every form, even in *alto-relief*, and others more difficult than moulded articles can be produced. The electrotype skin is filled with brass, which, with respect to solidity and appearance, gives the articles very great value. Then comes the *mounting*, the object of which is to apply the chased furniture to the forms, and secure them by soldering. Mounting demands much care and many precautions; for the elegance of the completed article depends, more or less, upon the taste exercised at this stage of progress.

SOLDERING

Is performed by means of the gas blow-pipe, and by this method the most complicated articles may be produced. The workman can always tell how his work proceeds, for it is constantly exposed to view, which was not the case formerly, when a covered fire had to be employed for the same purpose.

After the soldering comes the trimming down of the seams, and the final smoothing of the article for polishing, which is performed by means of brushes of boar's bristles, which are preferred to buff-leather, as wearing less and rendering the work more uniform. After polishing, the articles are decorated, either by engraving, or by chasing, or enamelling.

DE-SILVERING.

When an article becomes damaged and unfit for sale, or an old article requires to be re-silvered, it is necessary to remove the silver already deposited upon it. To effect this, mix six parts of sulphuric acid and one part of nitric acid. This liquid possesses the property of dissolving silver without attacking the copper. The operation is performed in a hot-water bath at the temperature of 160° Fahr.

In a new de-silvering bath, the copper is so well protected by the presence of the sulphuric acid, that the process has been employed to determine the quantity of silver with which an article has been covered. A series of experiments made upon articles having a known weight of silver shows the value of the process. For the operation to be successful, 1,000 parts of liquid must not absorb more than 25 parts of silver. Beyond this limit the copper is slightly attacked. If we de-silver a plate of copper 16 inches square, upon which a layer of copper $\frac{1}{100}$ths of an inch has been deposited between two layers of silver of fifty grains, the layer of copper interposed completely protects the subjacent layer of silver.

The accuracy of the process has, therefore, no other limits than the approximation of the balance employed.

Ungilding is performed in a mixture formed of sulphuric acid, 10 parts; sea salt, 1 part; nitrate of potassa, 2 parts.

The operation must be performed slowly, and the solution is worked cold, but the results are always less certain than those of de-silvering. De-silvering and ungilding can be performed in a concentrated solution of cyanide submitted to the action of the battery. By inverting the poles, this process is applied more conveniently to articles in steel; for this metal, placed at the positive pole of the battery, is not attacked, while gold, silver, and copper dissolve easily.

PRACTICAL OBSERVATIONS.

By the employment of electro-chemical processes, certain observations, useful to those who practise them, may be derived, the principal of which we proceed to give.

1. The electric current acts in the inverse ratio of the distance: it follows that the nearer an article or portion of an article approaches the anode, the more silver it deposits. It is, therefore, useful to turn this peculiarity of the galvanic current to account, by placing opposite the anode the parts which in the articles to be silvered are most exposed to friction.

2. The density being always greater at the bottom than on the surface of the bath, the deposit of silver is also more rapid. Experience has proved that, upon an article immersed in an ordinary bath, a third more metal is deposited at the lower portion. The only means of remedying this inconvenience, is to turn the pieces during the course of the operation.

STAMPING.

3. In the decomposition of solutions of silver by the pile, the cyanide of silver alone is affected: the silver goes to the negative pole, the cyanogen to the positive pole. The cyanide of potassium set free—less dense than the rest of the solution—rises to the surface of the bath, and determines an ascending current; the cyanide of silver formed on the positive plate is dissolved in the free cyanide of potassium, becomes heavier than the liquid mass surrounding it, falls to the bottom of the bath, and creates a descending current; hence there results in the bath a series of ascending and descending currents, which produce a multitude of small perpendicular streaks on the surface of the articles. To avoid them it is sufficient to render the density of the bath more uniform, by moving the pieces to be silvered.

4. At the same time the silver also deposits in the bath a sub-salt of this metal, which has the inconvenience of causing it to sulphurise more quickly when in contact with the air. To prevent this result, it is useful to immerse the articles, after the application of the scratch-brush, in a bath of pure cyanide of potassium, strength 10 per cent., then rinsing them in water acidulated with sulphuric acid, then in warm water, and drying them; or, which is better, covering them with a paste of borax, warming them slightly at a charcoal fire, and cooling in dilute sulphuric acid.

5. When a piece of plate, even after burnishing, is much sulphurised by long exposure to the air, we can quickly clean it, without in any way altering the burnish and the *mat* that decorate it. It is only necessary to pass it into a bath of cyanide, strength 4 per cent., rinsing in warm water, and drying with a fine linen cloth. Another method, which succeeds better on articles submitted to the scratch-brush than upon burnished pieces, is to pass them into boiling potash, with a bar of zinc in contact.

6. The baths become exhausted at last; that is in consequence of exposure to the air and to the passage of the electric current. A certain quantity of carbonate of potassa and ammonia is formed at the expense of the cyanide, which destroys the properties of the bath. The soluble anode is not sufficient to secure its durability. In order to remedy it, it is only necessary to add cyanide of calcium from time to time. This happy suggestion was made by M. Duchemin, an intelligent workman. By this addition, carbonic acid is precipitated in the state of carbonate of lime, and regenerates an equivalent quantity of cyanide of potassium, without uselessly increasing the density of the bath.

BRITISH COLUMBIA.

THE Pacific Ocean is rapidly becoming a most promising field of Anglo-Saxon and European enterprise. Anglo-Saxon colonies surround it, and Anglo-Saxon pioneers are to be found in every group of its islands. Japan and China, with untold wealth and crowded millions, are slowly opening their gates wider and wider for trade and intercourse. Russia is opening the Amoor and developing Siberia. Already it is proved, by the example of the Sandwich Islands and others, that the islands of the Pacific can produce sugar, coffee, fruits, spices, and other costly merchandise to great advantage. Native labour, guided by European and American skill, has been turned to good and very profitable account. Sandwich Island sugar will compare with the best known, and its "kona" (coffee) will soon be as celebrated as "old Government Java." The fortunes which have been made in the sugar and coffee plantations of the Sandwich Islands during a few years past will, in the next quarter of a century, entice thousands to the numerous islands of the Pacific. Every group of islands is destined to contain its civilised and its civilising community, and the trade and commerce of the whole will rise and spread rapidly. What relation shall we bear to all this growth of the Pacific? This is the question of questions, not only for us, but for our statesmen also. I am bound to declare my conviction that if these colonies are properly managed, we shall, in time, acquire the most commanding position of all. I know it will seem like foolishness to many to suppose that we can even hope to rival San Francisco or California, yet I think it possible, and I will give my reasons why. We have coal and iron—great elements of England's power and wealth—which California has not; we have fisheries and lumber inexhaustible, which California has not; we can build ships, which California cannot, except by paying a freight on timber, which doubles the cost; we have every reason to believe that our gold, silver, copper, and other mineral wealth, is as great as was ever possessed by California, and it is not, in scarcely any degree, exhausted. We have a good agricultural and an

admirable pastoral country—not such as will vie with California, but will, at least, make us independent. California excels in grapes and peaches, but we have the best apples and plums. We lack nothing necessary for our support, and our coal, iron, and lumber give us advantages over California in more ways than one. Coal and lumber are very bulky for the value, and employ large tonnage. The money that would buy a cargo of coal or lumber for a ship of 1,000 tons, could be carried in gold dust on a man's shoulder. This contrast is very striking, if we consider that the four or five millions produced annually in Cariboo, by 4,000 or 5,000 persons, could all be carried in a 10-ton shallop, while a saw-mill employing thirty men, could load a 1,000-ton ship per month, every month in the year. It will prove of immense advantage to these colonies to be able to employ so large an amount of shipping in carrying so bulky an export as coal and lumber, because return cargoes, being less bulky and more valuable, will always be brought to us at minimum freights—a fact to be borne in mind by the promoters of our future railroad across the Continent. Probably half the ships arriving at San Francisco have to leave in ballast, for want of sufficient export from that port.

Again, in possessing coal, iron, and lumber at our hands, we have the means of establishing manufactures here, and in this fact there is ground for great expectations from these colonies. It is when we become the chief seat of manufactures for the Pacific that the vast advantage of our temperate climate will be demonstrated. In the usual order of things, bulky articles will first be made, such as iron and brass castings and machinery, agricultural implements, wagons, carriages, household furniture, leather, &c. We have an excellent sheep country. At this moment there could scarcely be a better business than a blanket factory here, wool costing two-thirds of the price with you, and blankets fifty per cent. higher, and the Indian consumption enormous. At present a vital objection to manufactures here is the high rate of wages, but in time this will correct itself.

On the other side of the Pacific Ocean lies a country with 300,000,000 of labourers, who are happy if they can earn from two to three dollars per month, and who are ready to emigrate in countless thousands if they can get from five to eight dollars per month. They are a plodding and industrious race—not so strong nor so effective as the European in heavy work, or in work requiring judgment, but quick in learning, and unwearied in performing or repeating a dry detail of any work. The Chinaman is pre-eminently calculated to supply our factories with hands, to do what the women and children of England have had to do. In the future manufacturing systems of this country, the white man will be the manager, director, and man of skill, and Chinamen the operatives.—*Times Correspondent.*

Amusement and Recreation in Working Men's Clubs.

BY THE REV. H. SOLLY.

While it is quite certain that Amusement (including in that term social intercourse) is the first thing to be provided for by these Clubs, and that improvement of various kinds (mental, moral, and pecuniary), is the second, it is a point of paramount importance for working men and their friends to see how they can make the second result grow naturally out of the first.

This is not difficult, when we once get on the right track. A beneficent Creator has bound together in natural connection, and in beautiful harmony, things that are pleasant and things that are improving; has made the universe on such a plan that, if we attend to obvious principles, we shall derive immense enjoyment from learning what there is in it, as well as from using our own powers to add to its beauty, its wonders, its conveniences and joys.

One way, however, in which people who know a little have tried to teach it to those who know less, has been used for years at Mechanics' Institutes, and more recently at Working Men's Clubs, in both cases, for the most part, with signal failure. I refer to *Lectures*—but especially to lectures intended to convey knowledge or to promote improvement. Of course there have been various exceptions. I speak only of the general rule. Lectures, generally, are not well attended. No surer device can be adopted for securing a bad attendance of the members of these Institutes and Clubs than to announce the delivery of "A Lecture," unless some very gifted orator or unusually attractive subject is announced also. It has been found, however, that the exhibition of diagrams, dissolving views, &c., materially helps to draw or retain an audience. It is a great help, of course, to a tired or uneducated person, to have some illustration to look at, while striving to attend to a verbal description or statement. In the same way, also, experiments in chemistry, or with an electrical machine, air-pump, &c., materially aid their efforts.

But there is a large class of extremely interesting subjects, on which it is very desirable that working men should get information, but which cannot be illustrated by anything but diagrams or specimens—perhaps not at all. Most literary and historical subjects come under the latter head, and descriptions of the structure and functions of the human body, of animals, of famous cities, fossil remains, &c., under the former. Now, an admirable mode of drawing an audience to listen to selections from our noble English literature has been the "Penny Readings," which have achieved such national success, and been productive of such remarkable benefits. That success has been mainly promoted by the introduction of music, and especially of singing, between the readings. The latter alone have sometimes been highly popular; but, as a general rule, the songs have been found needful to win or maintain this popularity, or, at all events, to accomplish the most signal and *repeated* success. Here, then, we have an instance in which no ordinary benefit—viz., an acquaintance with and delight in English literature—has been connected in a perfectly legitimate manner with amusement, so that large numbers of people who were at once far too uneducated and too wearied to care to come to lectures on English literature, have been both benefited and highly amused by a judicious combination of readings and song.

Now, the point I am coming to, guided by these facts, is that we may avail ourselves to a large extent of the marvellous power which music possesses to gladden and refine the human heart, for the purpose of procuring an audience to listen with attention to other matter no less interesting, when pleasantly handled, than extracts from poets, humorists, and writers of fiction. Having prepared what would formerly have been called *a lecture*, on "The Hand, the Hoof, and the Wing," founded on Sir Charles Bell's very interesting Bridgewater Treatise, I consulted with the committee of one of our London Clubs as to the possibility of getting their members to listen to it. We were all agreed that it was very important to offer them something of an instructive or improving character occasionally, by way of variation to the perpetual round of mere amusement previously going on in the Club, and especially at their weekly entertainments; but we were equally agreed that to announce "a lecture" would be to ensure empty benches. Accordingly, the committee, at my suggestion, applied to our tuneful friends, the ever-willing-to-oblige Camden Town Club choir, and got their consent to come and sing a few songs, and give two or three recitations, on the occasion of my performance. We got a bill printed, therefore, to the effect that, "At the next Monday evening entertainment," I was to give "a description of the Hand, &c.," "illustrated by diagrams, and a few (bony) specimens, interspersed with a few songs and recitations by members of the Camden Town Working Men's Club." The plan proved successful. The "entertainment" commenced with two or three songs and a recitation, given in the able and pleasant style with which many of our London clubbists are familiar; then came the first part of my "description," which consisted mainly of what would, perhaps, have been considered rather dry stuff, if taken by itself (though enlivened occasionally by an anecdote or a joke, if it came handy), but which the previous amusement had sufficiently attracted and braced my audience to swallow contentedly—nay, even cheerfully. About twenty-five minutes of this work was a sufficiently long trial of their patience; but before they were thinking how to get away, I suspended my descriptions of comparative anatomy, and the chairman again introduced the choir. Two or three more songs or recitations, and then I concluded my labours with about fifteen minutes' additional description, and ten minutes of exhortation to make "the many members in one body of their Club work harmoniously and zealously together for the common good."

This experiment having worked well, I have repeated it at three other London Clubs with similar results. Miss Wallington kindly gave some of her admirable recitations when I went to the Southwark Club, and the members of the other Clubs provided the musical part themselves. I believe that, however comical the thing looks at first, there is no reason why *many* "lectures" should not be divided into two parts, with songs and recitations between, nor why *all* such useful exercises should not be preceded and followed by musical and literary amusement. We have often urged that the members of Working Men's Clubs must have some other and better excitement offered them if you would withdraw them from the public-house; but if that excitement can occasionally consist of blended amusement and instruction, you are not only doing the members double good at the time, but you are unfolding the higher elements of their nature and character, and making the Club a source of permanent blessing. Penny Readings will always, I trust, maintain their ground, and preserve their present high character; but everything human has a tendency to degenerate, and all human enjoyments require variety. I have heard more than once that these Readings were losing their hold upon the public in particular localities, and required a larger and larger infusion of the comic element (bordering even upon what was coarse) if they were to continue to attract. Much that could be given in the shape of historic and scientific description, would be quite as popular and fascinating as extracts from our best authors, if it could be varied, as the "Readings" have been, by music, &c.; and many persons who would have given a lecture a remarkably wide berth, would come for the sake of the songs, intending patiently to endure the "description," going away surprised and delighted to find, at the end of the evening, how much they have been at once instructed and amused. A striking illustration of the successful working of the above plan was recently afforded at the same Club at which I first tried the experiment last winter. Elihu Burritt had kindly engaged to give a lecture there on the "Charities of London," but when the time came for commencing, there were not a dozen people in the hall, nor much prospect of more coming in, though the rest of the Club-rooms were well filled. But, according to arrangement, the piano struck up a lively air; this was followed by a song or two; the hall rapidly filled, and Mr. Burritt had a good audience to begin with. Many, I believe, only meant to remain a little while, and then to go back to their games, &c., but once there, they soon became interested in the lecture, and fascinated by the lecturer's style and manner. Scarcely a person moved till he had finished, and vehement applause told how successful the attempt had been. Songs concluded the evening, and all felt how good it had been for them to have heard what they did, instead of the whole evening being occupied in their ordinary amusements. In this, as it would be in many other cases, the lecturer did not wish to divide his lecture—which, in fact, would have been an unsuitable proceeding; but in general either the subject would admit of the variety, in the middle, of songs and music, or the interest would be sustained throughout to the end. Of course, much depends upon the lecturer being able to say what he has to say in a pleasant, popular way, especially if the subject be a scientific one. But in all cases, however excellent the plan, personal qualities, of course, are a main element of success. Music, nevertheless, is a mighty lever for raising and improving the condition and character of our race, as well as for giving rational enjoyment. Let us apply it in the manifold ways which Working Men's Clubs, among other agencies, abundantly afford.

While, however, we cannot be too strongly impressed with the need of providing entertainment and instruction in Working Men's Clubs and Institutes, it is equally necessary to remember that many men will be far more interested in measures for promoting the comfort and pecuniary well-being of themselves and their families, than in entertainments or mental excitement of any description. The latter will almost always be welcomed by the great majority of working men, and be of value not only in itself, but also in attaching them to the Club; but with a considerable number of them amusements will always be a subordinate affair, and their connection with some Provident, Friendly, Co-operative, or similar society will be the sheet-anchor to hold them fast. The *Kentish Town* Club is a striking instance in point. This Club has had a hard struggle for life, owing to various causes, but early in its career some of its able and zealous managers formed a Provident Loan Society, Coal,

Clothing, and Christmas Provident Clubs, and I may here add that it is now proposed to form the Coal, Clothing, and Christmas Clubs into one general Co-operative Society, for the purpose of purchasing all domestic articles at wholesale prices. Those societies have been very useful to the members, and highly valued. Hence, when the rest of the members of the Club fell away, these continued staunch, and resisted every proposal to break up the Club, which, they said, would just ruin their Provident Societies. Thus, standing firm, they have been enabled, with the seasonable help of their honorary members, to exist through periods of great depression, and, I think, they will now be able to last till, avoiding former errors, they have won over to their side a large number of the working men of the neighbourhood.

A somewhat similar and important illustration comes to us from the *Hull* Working Men's Club. The secretary says in his "Return," kindly furnished to us early in this year—"Our Club now is in the possession of the Co-operative Store, both being on the same premises, and is managed by the committee" (of the Club). Then, in answer to the question, How far is the Club self-supporting? he writes—"Since we have had it (the Club) in connection with the Co-operative Store—six months—it has supported itself. *Previously it was losing £1 weekly.*" I have often had to dwell on the great mutual benefit which Clubs and Co-operative Stores may confer on each other, and it is worthy of remark that many men whom no amount of ordinary amusement or mental entertainment (still less, of course, anything in the shape of mental improvement) would induce to leave the publican's fireside, have abandoned it and, by degrees, taken altogether to better ways, in consequence of having joined a Co-operative Society. They will come to the shop and lounge in the back parlour, if fortunately there be one, and talk about "the concern" in which they have acquired a definite stake, with an interest that lifts them out of the old rut for a time, and gives the chance of interesting them in other things also.

But, *per contra*, a very promising Club has been brought to death's door, mainly, I believe, through the best men connected with it forming a Co-operative Store, and having all their time and energies absorbed in its management, so that the poor Club was deprived of its natural and fittest leaders, fell into incompetent hands, and has gone into a condition from which, I am afraid, no power can rescue it. Let our friends at Hull and elsewhere note this melancholy catastrophe, and take care to secure sufficient *managing power* for both their valuable undertakings. Working men's enterprises so often fail, because of the very limited time at their command. The best men to manage any society naturally have their hands over full, from the number of important and responsible duties pressed upon them, as a consequence of their having won the confidence of their neighbours.

THE HARTFORD WORKS.

Yet larger is the establishment of Messrs. Platt Brothers and Co., at Oldham, known as the Hartford Works. In it more than 5,000 men and boys are constantly employed, to whom at least £250,000 are paid each year in wages alone. Its various forges, foundries, workshops, and yards cover twenty acres of ground, and consume each week about 500 tons of coal and 150 tons of coke, which, by help of fifteen steam-engines, with an aggregate power exceeding that of 2,500 horses, convert some 450 tons of iron every week into machinery of various sorts. The iron reaches the works in the crude state to which it is reduced by the blast-furnaces. It is puddled and brought into a malleable condition before being conveyed to the smiths' shop, there to be submitted to an iron-cutting saw capable of revolving a thousand times in a minute, and passing in each revolution through a trough of cold water, to prevent it from becoming too hot by friction with the metal. The iron bars thus cut into the proper lengths, are next pressed between revolving rollers, which give them a perfectly smooth and uniform surface; then they are conveyed to the turning and fitting shops, "which," we are told, "for extent and completeness stand unrivalled in the world. On the floors of the buildings set apart for these processes, hundreds of turning-lathes, and of planing, shaping, slotting, boring, and screw-cutting machines are to be seen at work. In one room we see a planing-machine with a bed large enough to hold one-half of the framework of a large power-loom, the cutting-tools of which are so adjusted that all the portions of the frame which require planing are acted upon at one time, while in another we find a shaping-machine, manufactured at great cost, devoted to the production of a tiny bracket. One turning-lathe will be found reducing the face of a huge cylinder—the chisel, as the cylinder turns slowly round, paring the hard metal with as much apparent ease as though it were chalk, while at another an active lad is turning off small iron screws by the gross." The different parts of the various machines that are to be produced, are forged and shaped in different rooms. They are finally taken into the fitting-up rooms, there to be put together and prepared for distribution to the wholesale dealers and shipping-agents. All sorts of machinery are made in this vast establishment, but its chief business is in the construction of appliances for cotton and woollen manufacture. It is calculated that in it could be produced each week the entire fittings and furnishings for a mill of 20,000 spindles for preparing and spinning either cotton or wool, as well as for a weaving-shed of 200 looms, of which the yarn thus manufactured is to be made into cloth.—*London Society.*

THE COMING DAY.

Hurrah! hurrah! the night is past,
The dawn is in the sky at last—
The dawn of love—the morn of peace,
When hate, and strife, and wrong shall cease,
And earth with smiles of heaven shall glow,
Lit with the dreams of long ago.

Oh, happy morn! oh, blessèd day!
Whose sun shall chase our fears away;
Shall light the dark, and burst the chain
From aching hearts that plead in vain,
And into crowns of glory turn
The thorns that pierce—the tears that burn.

Joy, joy to him whose eyes shall see
The grandeur of that day to be!
That ripened splendour in the East—
When hungry souls shall rise and feast,
And, God-encouraged, land with land
Shall walk as brothers hand in hand.

The spear shall be the pruning-hook,
The sword, the teacher and the book;
The battle shout shall be the cry
Of every evil doomed to die:
And good alone shall nestle here
In that great day whose hour is near.

Matthias Bare.

*The Moral and Social Aspects of the Temperance Movement.**

It has sometimes been ascribed to the advocates of Temperance as a weakness that they associate the exclusion of alcoholic liquors with the dawn of a millennium, not only of sobriety, but of every grace and virtue: but we are persuaded that such a representation is unfair. They say that the effects would cease with the extinction of the cause; and from this common-sense axiom they draw the conclusion, that by universal total abstinence from strong drinks society would realise all the benefits involved in the extinction of drink-caused pauperism, crime, and sensualism of every grade. This conclusion has been disputed, on the ground that some other form of animal indulgence would take the place of drinking, and, perhaps, one more injurious. But the advocates of Temperance are justified in refusing to fight so aerial an objection, which is unsupported by historical analysis, and contradicted by the effects already observed—and which could be just as pertinently alleged against every means of effecting a removal of our national intemperance. It is also quite a gratuitous assumption that some other intoxicating agent, as prolific of immorality, would be discovered. Opium is often named as a drug resorted to by abstainers from alcohol, but the charge has hardly ever been sustained in individual cases, and is notoriously false as applied to the Temperance community. Whatever, too, may be its physical effects, in a moral and particularly a crime-producing view, opium cannot be compared with the spirit of the still. Loose writers have at times appealed to the vices of the Turks and the cruelties of the Hindoos as evidence that sobriety may co-exist with immoralities of the deepest dye; but the appeal is pointless. Both Turks and Hindoos have become extremely corrupted, as to the use of alcoholic liquors, by European associations; and it is well known that the Turks, among whom the highest moral characteristics are to be found, are precisely those who remain faithful to the mandate of the Koran against the use of wine. The conduct of the Sepoys during the mutiny was exceptional, and their worst cruelties were generally connected with the use of arrack, or bhang. Indeed, were no other differences to be considered, those of religion and superior civilisation on our own side would make all attempts at a parallel ridiculous. It is rather to our discredit that, with such immense advantages, our moral state should, on the whole, be so imperfect; and if the predominating cause of this failure is brought home to "the drink," the Temperance advocate cannot be accused of fanaticism, in predicating a very great and beneficial change as the result of his principles, were they nationally adopted. Even short of a national adoption, he can point to the success of the experiment on every scale, large and small. In Ireland, as before remarked in reference to economy, so even we may observe in regard to morals and social improvement, the transformation was as complete as could be imagined. In America the Washingtonian reform of 1840-2, by which 300,000 drunkards were reclaimed, was like the fall of a teeming rain on an arid soil. In Wales similar effects have been produced, and in no case have the good results been known to abate while the efficient cause retained its vigour. In many parishes, of both England and Scotland, where no sale of intoxicating liquors is permitted, by the refusal of the landowners to have any house licensed, the moral and social condition of the people contrasts favourably with that of the inhabitants of other parishes where no such restrictions are imposed, even though the parishes under the two systems have their boundaries side by side. Could a similar comparison be instituted between large towns—could one class altogether illustrate the effect of total abstinence, and the other class continue to exhibit the effect of common drinking—it can scarcely be doubted that scepticism would be compelled to admit a difference which, in the absence of such a series of comparisons, it is vain to deny. The abstainer, however, can plead with reason that many of the moral and social advantages incident to his system are overlooked and qualified, especially in domestic training, by the interfusion of classes and the exposure to evil influences from the opposite system. But sufficient is seen and demonstrable to show how much society would gain by an adoption of the one system in place of the other. All that strong drink ever does to sow the seed of an unnatural vice, to excite the lower appetites, to fire the passions, to induce extravagance and idleness, and thence poverty and want—all that it does to increase crime, and feed the grosser vices that prey on soul and body—all that it does to turn home into hell, and blast the hopes of childhood—all this would cease, if the Temperance Reformation could be consummated; and were it to cease, who doubts that happier days would dawn upon the England we love so much?

All social reformers are likewise forward to acknowledge the connection of social and moral progress with conditions of sanitary surroundings and natural comforts. The influence of Temperance in directly ministering to these conditions may, therefore, be set down to its further credit as an instrument of moral and social elevation. Its wonderful powers of usefulness, when earnestly plied, have been fully proved; and its zealous advocates cannot be blamed if they look back with wistful eyes to the greater blessings which a more general employment of the same agency would confer upon the nation.

* Concluded from page 323.

Master and Apprentice.—In a recent action, "Rayment *v.* Winton," in the Court of Exchequer, for an alleged breach of covenant, the declaration stated that the plaintiff's son-in-law had put himself apprentice to the defendant to learn the art, trade, or business of a builder, ornamental painter, and decorator, for a period of five years, and that the defendant thereby covenanted to teach the apprentice in the said art, trade, or business, by the best means in his power, but had neglected and made default. The defendant, by his plea, stated that at the time of the alleged breach the apprentice would not be taught, and by his own acts hindered and prevented the defendant from teaching him, and thus caused the breach. The Court sustained this plea. The apprentice's willingness to be taught was, from the necessity of the case, a condition precedent to his being taught; and as the master's covenant was to teach by the best means in his power, and the apprentice had put it out of his power to teach, he could not be called upon to perform an impossibility.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

IN our next Number an acknowledgment in detail will appear of the Essays which have been sent in for competition for the Twenty Prizes, Ten of Five Pounds each and Ten of Three Pounds each, offered by Messrs. CASSELL, PETTER, and GALPIN.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JUNE 9, 1866.

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Working-Class Policy.

WHEN an eminent ecclesiastical rhetorician wanted a simile, which should illustrate unappreciated profusion, he fixed upon water and words: water, whose plentifulness enables us to offer it freely, and words which, in the shape of advice, are given with greater bountifulness. Notwithstanding this subtle warning that advice may be tendered in futile copiousness, we shall venture a few sentences upon what we may call working men's policy. In so doing we invite the careful attention of working men to the subject, which, obscure and unpromising as it may at first seem, bids fair at no distant period to become one of paramount importance.

It is a new thing, and a great thing, to find that working men have reached that stage of progress when they have conceptions of policy. We are distinctly persuaded that their ascendancy in the social scale and in personal prosperity will be secured when they come to act on general principles—when they place before themselves great objects, and come to an understanding among themselves as to the methods to be pursued to accomplish them. All their failures in association, all their apathy in compassing unity among themselves, arise from not having given thought sufficient to the kind of policy the best calculated to promote their just ends.

Many think that policy means mere craftiness, and will have nothing to do with it. If it means this, they are right in having nothing to do with it. But it does not mean this. It means method of procedure; it signifies the selection of honourable means for the attainment of honest ends. Everything intelligent is really regulated by a policy of some kind. He who speaks grammatically, speaks with policy, for grammar is but the policy of speech. The arithmetician acts on policy, for arithmetic is but the policy of calculation. The mathematician acts on policy, for geometry is the policy of determining magnitude. The very laws of music are but the policy of melody, just as law is the policy of liberty, and order the policy of progress, and justice the policy of security. The fact is, that man is ignorant who does not understand policy, and is an hourly blunderer who does not act upon it. Nobody objects to policy except those who do not know what it means, and who mistake it for something else.

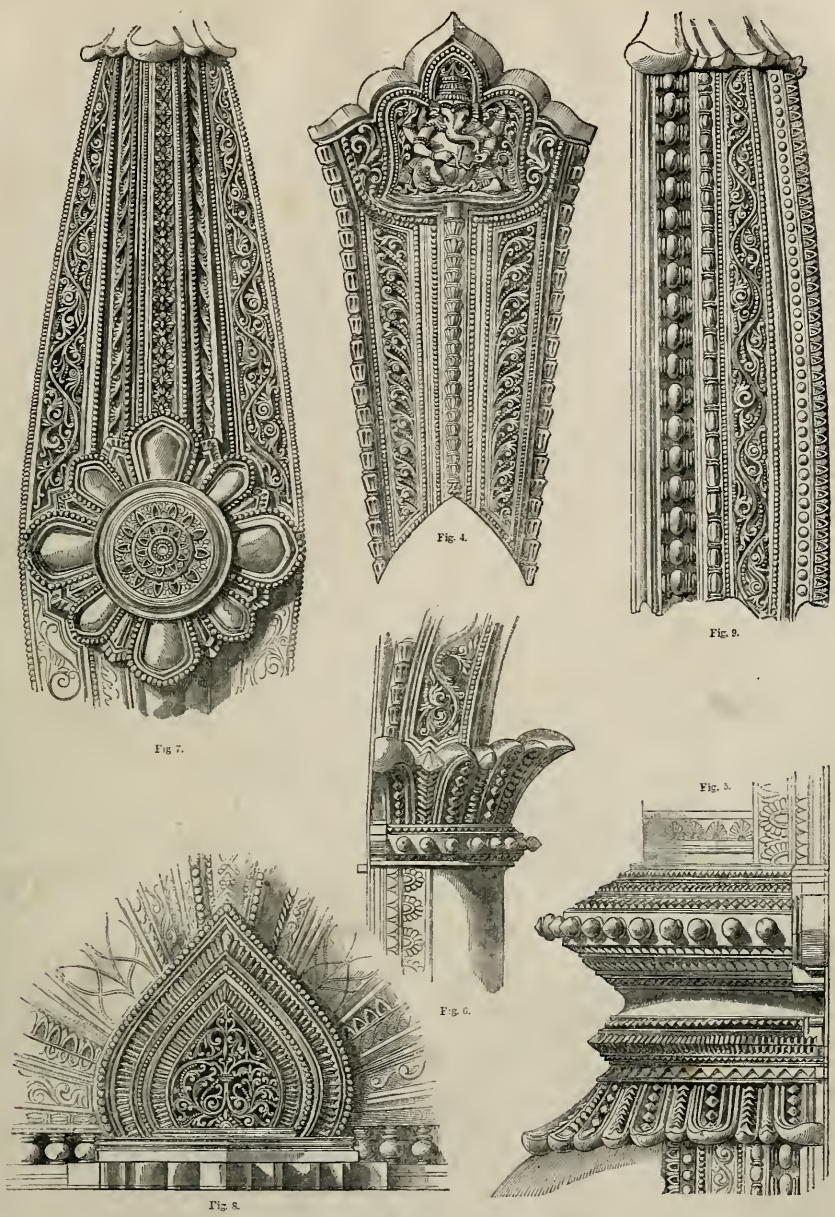
In the days when the working class thought of physical force as a means of political elevation, that was their policy so far. Even that stage indicated that they were acquiring ideas of policy, though in this case erroneous, peradventure. Now they begin to see very generally that it is by unity, by intelligence, by habits of providence, by use of Co-operation, and similar means, that their best chances of success appear. The working class, therefore, are settling down into chosen methods of procedure for the improvement of their condition. This is policy.

Temperance, every thinking man now knows, is the policy of health; regulated exercise is the policy of strength; economy is the policy of wealth; truth is the policy of manliness, as the liar is ever a coward or a knave. But men who can now well discern principles of policy for themselves, fail to discern them in others. A curious instance has lately occurred in a London Trade Society, mentioned in the public prints. The United Trades have been justly active in procuring an amendment of the Masters' and Workmen's Act, with a view to equalise the legal position of workman and employer in cases of breach of contract. Lord Elcho has made himself instrumental in procuring a Parliamentary Committee of Inquiry into the operation of the existing Act, and will, in due Parliamentary course, be the Chairman of the Committee. This office implies great labour, and responsible attention to the question. To undertake this implies good feeling towards the men seeking the inquiry, and his lordship not only commits himself to the necessity and justice of the inquiry, but commits also, to an appreciable extent, gentlemen with whom he usually acts in Parliament, who are not politically very favourable to the working class. But the trades societies have, it appears, objected to Lord Elcho being chairman. This does not seem a sound act of policy. Lord Elcho is more likely to do justice to the working class in social matters than a chairman politically favourable to them. Nothing is more common than to find men illiberal in one thing, liberal in the very opposite. Men who will withhold political power, will accord very readily social privileges, with a view to satisfy them and render them contented. A Tory, for instance, is far more likely to have paternal sympathies towards working men than a Whig, and a Whig more so than a Radical. It seems curious, but it is quite true, and as common as it is true. The Ten-Hours Act, and many features of the Factory Acts, which are beneficial to the working class, would never have been passed but for the aid of Tories. These concessions might have been prompted by the antagonism of the landed interest to the factory interest. With this we have nothing to do. We do not justify it, nor apologise for it; we only explain it. We look upon the question purely as one of policy. The Whig thinks the people ought to take care of themselves, and, therefore, would give them rights to enable them to do it. The Radical is still more favourable to the independence of the people, and would give them equal rights, and is rather apt to leave social rights to develop themselves as they can; and many Liberal constituencies are rather inimical to them. Now, the right of self-help is a higher gift than many acts of paternal kindness; and so the motive of those who give least may be more estimable than that of those who give most. But those who will give most of what you want are not to be lightly set aside. In matters of policy we think first of how we are likely to get what we most want, or profess to want, and accept the services of those most likely to give them. If, while professing to amend an Act of Parliament, we are most anxious to resent political slights, and retaliate upon members of Parliament with whom difference of opinion exists, that may be amusing, exciting, or even useful; but it is pursuing one object while professing to seek another. In the case we have named, it is converting a question of legal right into a political disputation. This may be commended by many reasons at this time, but it is an example of what is *not* policy. The late Mr. Cobden would never do this. His great success was owing to his seeking clear objects and accepting the aid of all who would promote them, and in never mixing up two distinct things together. In politics, as in other affairs of daily life, doing one thing at a time is true policy. But this subject is a wide one. We scarcely open it; we do not exhaust it. An illustration of it lay near at hand, which it seems useful to offer. If our remarks cause the question of methods of procedure to be thought over by working men, it will lead, whether to this view or that, surely to larger views; and with width of view comes soundness of view, and that is the main thing.

GYMNASIUMS WANTED.

LIVING close to a great thoroughfare in a northern district of London, we have often noticed, with pain and surprise, the large number of wayfarers who are "deformed, unfinished," and either crippled by weakness, want of care in infancy, or by following unhealthy trades. Many have one or two club feet; others are bent in the limbs on one side; there are stiff limbs, which do not act so well as the artificial ones of clever makers. Many are deformed and stiffened by attacks of rheumatism, and others by paralytic and nervous causes. The bandy legs and rickety state of very young children might be, to a great extent, prevented, by attention to proper air, food, and clothing supply; and in other ways much of the evil referred to might be lessened, by surgical attention to children when in their younger years. Notwithstanding there are facilities afforded for the cure of these imperfections, not only in the Children's Hospital, in Great Ormond Street, but in other of the metropolitan hospitals, where often a simple and not very dangerous operation, with a little care, will prevent the early close of life, or the passing of one in a lame and crippled state; still, the opportunity is neglected, and in course of time the deformity is still further confirmed by the sufferers being put to some sedentary employment. This is a matter which requires more thought than has been generally devoted to the subject; and we believe that, if it were better known how easy it is to get assistance of the very best description at St. Bartholomew's and other hospitals, and also the use of splints and apparatus of different kinds, but a tithe of the lame would be seen in the streets of our large towns. A considerable number of the cases of deformity which are far too frequently met with arise from accidents, but some are brought upon youths who are sent, at the ages of from thirteen to fourteen and fifteen years, to trades which, in course of time, to a greater or less extent, make the limbs lose their fair and right proportions, and, in addition to discomfort, cause much damage to health. In Sheffield, Birmingham, and some other towns, where many persons are employed in the grinding, polishing, and finishing of tools, a trade which requires both men and women to stand or sit for many hours together in one particular attitude, the muscles get set in a form similar to that which the workpeople stand or sit in when labouring at the bench.

In Clerkenwell a considerable amount of this kind of



ORNAMENTAL DETAILS OF THE INDIAN BINA, OR GUITAR.

deformity may be noticed, particularly amongst those who are employed in some branches of the gold and silversmith and jewellery trades. There may be seen lads, of seventeen or eighteen years of age, who work at the polishing of gold and silver ornaments, whose limbs have become like the Sheffield grinders, of unnatural and unhealthy forms, and this kind of deformity comes more quickly than many suppose, and extends to various employments. The long-established letter-carrier or deliverer of newspapers gets a form of arm and shoulder which is still to be noticed when he has nothing to carry or deliver. By his particular gait, any one can distinguish a tailor or a shoemaker in the street; and clever detective and other skilled officers of police can, by certain indications, guess whether or not a man is telling the truth respecting his past pursuits. It is a great pity that crippling of this kind should be allowed, for there can be no doubt that facilities for gymnastic exercises, used properly and in sufficiently early time, would to a great extent counteract the effect of most sedentary trades. Gymnasiums, which could be easily accessible in both winter and summer, at a small cost, would be of the greatest service.—*Builder.*

*Indian Ornamentation.**

A BINA, OR GUITAR.—DETAILS OF THE ORNAMENT.

HEAD OF THE INSTRUMENT (FIG. 1, PAGE 322).

Fig. 4. *Trilobate medallion in ivory, perforated, on a gold ground.*—Ganesa, God of Wisdom, Destiny, and Marriage, represented with the head of an elephant, was the son of Siva and Parvati.

Fig. 5. *Ornament terminating the lower portion of the neck, seen in profile.*—The upper part is composed of seventeen ivory cloves, and the lower part of nine palmettes, carved in wood, painted yellow, encircled by a double red line. Between each palmette is a slender palm, streaked with green colour. The small vacant space between the two ornaments is decorated with striated circular bands, alternately red, yellow, and green.

Fig. 6. *Ornament placed below the head of the instrument, seen in profile.*—This is identically similar in material, workmanship, and colouring to that described above. The only difference consists in the position of the palmettes, which are upright, instead of being reversed.

TOP OF THE FINGER-BOARD (FIG. 2, PAGE 322).

Sculptures in ivory, perforated, upon a gold ground.—Two Apsaras (celestial nymphs), of whom Rama is queen, and who charm by their dancing in the paradise of Indra, God of the Air and the Seasons. This subject is surmounted by an ivory bow, over which passes the four strings, which are wound upon the pegs.

Four Gojris, companions of the infancy of Krichna, sustain a tree, the branches of which envelop this deity. Beneath, Gandharvas, companions of Indra, are dancing.

Fig. 7. In the sonorous portion of the instrument (Fig. 1, page 322) the middle zone is decorated throughout its entire length by three bands

* Continued from page 322.

of carved ivory, separated from each other by small arabesques, painted on wood. In the middle, and surrounding a medallion of carved ivory upon a gold ground, are eight palmettes in painted wood—four of which are upon a red ground, surrounded with a triple milled yellow line, and four upon a green ground, with lines similar to the first.

Fig. 8. The zone, which occupies the middle of the back of the instrument, has on each side a large band of ovoidal form, in wood, painted red, decorated with light yellow interlacings. These two zones are environed by a running ornament in carved ivory (Fig. 9) terminated by a row of ivory balusters, detached from each other, and upon a gold ground.

The ornament which terminates the decoration of this instrument is formed by a small bas-relief in ivory, of ogival form, perforated, upon a gold ground.

Children in the Black Country.

"A Staffordshire Lad," writing to the *Pall Mall Gazette*, states that notwithstanding the success which has attended hitherto the introduction of the Factory Act, any proposal to extend its application to other districts elicits a storm of opposition both from the ranks of capital and labour. The Black Country is a case in point. Here the mines, forges, and workshops abound with children, many little more than infants, who, for a miserable pittance, are deforming their bodies, corrupting their minds, becoming lost in ignorance and crime. Few districts in the country have furnished more revolting instances of juvenile depravity. The commercial progress of the district has also been to some extent retarded by the poor mental and physical condition of its workpeople. Both these facts are traceable to the same source; yet the Government proposition, urged by Lord Lichfield, to extend to the Black Country the Act which has proved so beneficial in other parts of the country is strongly opposed, not merely by "the unthinking multitude," but, strange to say, by gentlemen of influence and position in the district. At such a moment, a few facts as to the condition of the little children of the district, which have come under the observation of one who has spent much time among them, may be interesting.

Standing on the venerable ruins of Dudley Castle, a complete panoramic view is obtainable of that part of South Staffordshire and East Worcestershire not inaptly termed the Black Country, a district extending some six or eight miles in every direction around that pile. The population of the Black Country exceeds half a million, of which number one-third are engaged in the mines and brick-fields, one-third in the iron-works and furnaces, and the rest in the miscellaneous metal and hardware trades. With the exception of the mines, which are already under Government supervision, children under the age of thirteen are engaged more or less in all these branches of industry. The approximate number of these "little hands" has been computed as follows:—Furnaces, brick-fields, &c., 1,000; iron-mills and forges, 1,000; hardware and metal trades, 3,000; making an aggregate of about 5,000.

The employment of these children at the furnaces is called "box filling," or loading the trucks which convey the material to the furnace. It is an out-door occupation, requiring considerable strength and endurance, and engaging them in turn by night as well as by day, with no intermittent respite on Sundays, except in some few instances. The hours of labour are from 6 a.m. till 6 p.m., and from 6 p.m. till 6 a.m. respectively for the day and night set of these boys, who work as long as their fathers. In this case, however, beyond the fact that children so young are employed at all, there is nothing specially to complain of.

In the mills and forges, boys of all ages, from eight and upwards, may be found, amid the labyrinth of machinery and the coils of heated iron, engaged by day and night in tugging long red-hot seething bars. Their activity is very great, owing to the nature of their work, which requires rapidity of movement, and contrasts strangely with their otherwise jaded and worn appearance. In addition to the labour of dragging along the iron, each of these little fellows has to run, in short stages, a distance of more than eleven miles every day, in an oppressive atmosphere, thick with dust and steam. Owing to the quick and uncertain movements of the hot iron bars in their passage through successive rolls before having time to cool, the occupation of these boys is attended with some danger, a serious burn being an almost every-day occurrence. Standing in the midst of an extensive forge a few years ago, I was alarmed by a cry of terror at the farther end of the works. There was a general rush to the spot, and I shall never forget the horrible and sickening sight that met our view. A large rod of seething iron, in coming from the rolls, had somehow twisted aside, and had literally pierced through the body of a little fellow some ten years old. For awhile the roar of the machinery was suspended, and two or three brawny puddlers carried the hapless creature home; but when the first thrill of horror had passed away the wheels were again set in motion and all went on as before. The lives of these boys are almost entirely spent in the forges, except the hours allotted to sleep. They have their meals there, and in the snatches of leisure it is their playground. In most of the works is the arm or basin of a canal, the water of which is kept in a state of chronic fever, and in which, despite its inky colour, they delight to bathe both in winter and summer. So constant are they in their ablutions that they often come out parboiled, like a washerwoman's thumb. Some of the proprietors of these works have provided night schools for the instruction of the children in their employ; but as a rule they are in mind and body alike neglected, and the densest ignorance prevails. They have no home training, most of their houses being locked up all day, the parents and all the children being out at work; and returning home fatigued at night, nothing but bed or a carousal in the "Fox and Dragon" is acceptable. Returning home late one evening, I saw two little children, a boy and girl, lying asleep upon a doorstep, which proved to be that of their own home. On awaking them, they told me they were waiting for their mother to come out of the neighbouring tavern and open the door. They had no father, and had been hard at work all day. The boy worked in a forge, the girl in a foundry, and the mother in a japanning factory, and though thus separated all day, there seemed no bond of affection to bind them when they met together.

West of Dudley is a strange, wild region known as the "nailing district," composed of scattered hamlets, to all the houses of which is attached what appears to the stranger a blacksmith's shop. The manufacture of wrought nails is, and has been for a century and more, the great staple industry of the district. It is carried on by the nailers in their own houses. In few trades of the district does the employment of women and young children assume a more objectionable form than in this. The women seem to have lost all traces of the modesty of their sex, and from childhood are addicted to swearing, smoking—resembling as far as possible the other sex in their habits and deportment, even to the wearing of their coarse flannel jackets. They mostly marry very young, often at fourteen, and seldom later than eighteen or twenty. With such women for mothers, it is not difficult to judge of their children. From tenderest ages, often from five or six years, they are trained to that round of labour in which their lives are doomed to be spent. The first stage is "blowing the bellows," and next they are taught to forge the smaller kinds of nails. The hours of labour are dreadfully prolonged, often exceeding sixteen hours per day; the rate of remuneration is very low, and the homes are consequently wretchedly poor. Entering one of them lately, I saw the father, mother, and eight sons and daughters, all toiling in a small, ill-ventilated, dirty hovel. It was growing late in the evening, and I inquired, "Is it not time to cease your day's work?" "Oh, noa, maister," rejoined the mother; "we've a noit's work afore us yet, or there'll be no bread o' the loaf o' Sunday." It was Friday night, and it was, as I learnt, a practice to work from Friday morning until Saturday afternoon, without having more than short snatches of rest for meals. While I lingered, a little fellow, who could not have been more than eight, fell from his work apparently exhausted, but his father, on observing it, threw at him a hammer-handle, telling him, with an oath, to re-commence his work. He took no part in our conversation, having, like his two eldest daughters, a short pipe in his mouth, which seemed to him and them "the calumet of peace."

This is by no means a solitary case. Hundreds of such instances are to be found of little boys and girls, just emerged from babyhood, ill-fed, ill-clothed, and over-worked, trained amid vulgarity and vice, and in the densest gloom of ignorance. Were it not for Sunday-schools, I shudder to think of the future of these hapless children. Their lives could only be compared with those of the "heathen in his blindness," on whose behalf Exeter Hall is pleading so eloquently during this month of May. I visited a Sunday-school in the nailing district a few Sundays ago, and found there a multitude of these little "Christian savages." They were lustily singing a hymn as I entered which is very popular in the district, rather, I suspect, because it goes to a lively tune than because many of the children can heartily appreciate the sentiment of the words:—

> "I thank the goodness and the grace
> Which on my birth have smiled,
> And made me in these Christian days,
> A happy English child.
>
> "I was not born a little slave
> To labour in the sun,
> And wish I were but in the grave,
> And all my labour done."

A sad feeling came over me as I looked upon the crowd of wan, pale faces and worn frames, and compared that scene to the burden of the song of praise, and I could not help wishing from my heart that the contrast was somewhat more striking between "a little slave" and these "happy English children."

In other branches of the hardware and metal trades the evils of child labour equally abound, especially in the foundries, japan-works, and tin-plate factories; but, as a rule, they are less aggravated in the large establishments than in the smaller workshops.

Space will not, however, allow me to refer in detail to more than one other branch of industry, and even upon this my comments must be brief. The brickfields of the Black Country lie between Dudley and Stourbridge, a district which, like the nailers' haunt, is wild and bare.

The produce of the clay-pits is moulded into bricks, tiles, and pipes, of which enormous quantities are made here and sent to all parts of the country. The various establishments are called "yards," and employ a very large number of persons, the great majority of whom are very young females. The scene presented at these yards is somewhat grotesque. Queer clay-coloured beings, whose sex can hardly be distinguished by their dress or gait, paddle along with bare feet through the wet clay, reminding one of the quaint representations of Egyptian brickmaking in the days of Pharaoh. As they run from place to place, they sing snatches of coarse songs or crack obscene jokes for mutual encouragement. The hours of labour are nominally from 6 a.m. to 6 p.m. for the girls, but these hours are often exceeded. The younger girls, from eight to thirteen years old, are chiefly employed to carry bricks for the women, to fill carts, or empty kilns. As an example of the fatigue these children must undergo, I may state that a kiln containing 17,000 bricks, weighing 7¼ lb. each, was recently emptied by ten little girls in a day and a half. Each girl had consequently to catch and toss on to her neighbour in a day of usual length a weight exceeding thirty-six tons, and in doing so to make backwards and forwards, 11,333 complete half-turns of her body while raised from the ground on a sloping plank.

The foreman's account of these girls was that they were "very bold and cheeky." Even the youngest among them seemed able to appreciate the ribald jests of their elder sisters. The nature of their occupation is quite opposed to every feeling of refinement or modesty. I dare not attempt to describe the impurity of language I have too often heard among these girls, even of tender ages.

Laying aside the other part of the subject—the employment of women—I venture to think that these simple statements, in regard to the children of the district, will suffice to satisfy those who deny the need of Government interference or the necessity of some reform. And allow me to ask them, in conclusion, to consider how many girls are being led to untimely ruin, and how many boys are rising up to swell the ranks of ignorance and crime, before they quote again the oft-urged plea that Parliament has no right to pry into such matters as these.

Co-operation and the Journeymen Bakers.

We felt it our duty, in the interests of humanity and of that class for the benefit of which our efforts are more especially intended, to draw public attention upon two occasions to the melancholy condition of the journeymen bakers in London and elsewhere.* We turn now with pleasure to a more agreeable task—that of chronicling some successful attempts to inaugurate a better state of things. The tyrant's plea, necessity, has generally been the excuse offered by master bakers, and the facts we shall adduce will show whether it will avail to exonerate them from the guilt of destroying the health and shortening the life of thousands of their fellow-men. If we can prove that it is possible to bake bread by day, in healthy, cheerful buildings, and without keeping the men at work for more than twelve hours, including their meal-times—if we can prove this, and that for bread so produced a ready sale can be had, then we shall have disposed of the only ground upon which the master bakers can rest their innocence of the great crime laid to their charge.

We are prepared to prove these statements to the letter.

Some years ago an agitation was set on foot in Ireland for the purpose of improving the condition of the journeymen bakers. The movement excited a good deal of attention, and a mass of evidence was brought forward which showed that anything more deplorable in point of immorality and of physical discomfort than the state and habits of this body of operatives could hardly be imagined. Depravity, disease, and death claimed them from their apprenticeship as their appointed victims. The public were somewhat shocked by these disclosures, and there was no lack of sympathy with the sufferers; at least, of that cheap kind of sympathy which evaporates in commiserating looks and expressions of pity—"poor creatures," &c. &c. Under the pressure of public opinion, the master bakers in one or two of the provincial towns for a time adopted the principle

* See pages 217 and 241.

of day labour, but after a while they dropped off one by one, and returned to the old course; those who held out longest giving in at last for fear, as they alleged, that they would lose their customers on account of their inability to supply hot bread in time for breakfast. Public interest, meanwhile, died out, and the working bakers were silently allowed to sink back into their former state of misery. One or two master bakers, however, to their honour be it spoken, resolved to hold fast by the right, and they now remain as a protest against the needlessness and iniquity of the present system. Among those who have done so is Mr. Hughes, of Belfast, who has fifteen ovens at work, and employs numerous men in his establishment. It is now two or three years since Mr. Hughes adopted the day system, and it has proved a perfect success in his hands. We are not sufficiently well acquainted with the details of his establishment to describe his method of doing business, but we have watched with great interest, for the last month or so, the working of a day-bakery recently opened in Dublin. Our readers will hail the event with all the more satisfaction when they learn that it belongs to a Co-operative Society, and furnishes another instructive example of the benefit which this new system of industry is calculated to confer on the working man.

The central shop and bakery of the Dublin Joint-Stock Society is situated in High Street, in the heart of one of the most populous districts of Dublin, within two or three minutes' walk of the Four Courts and the Castle. Though it is only a few weeks since the company opened, they have found it necessary to establish branch shops through the city, the demand for their bread running so far in excess of what could be immediately supplied by the carts and horses provided for the purpose, and the number of customers is continually on the increase. Their bakehouse, constructed from designs by their architect, Charles Houston, Esq., is a spacious, cheerful, well-lighted and ventilated building, substantially built, neatly coloured in blue and white, with tiled floor. The bread is conveyed into the bread-room by a cart running on a tramway raised above the troughs where the dough is kneaded, and the men, therefore, are saved all the labour of carrying *themselves* as well as the bread—a matter the importance of which may be estimated from the articles on the subject of economical labour, by Professor Houghton, in the Working Man. The men come to work at five in the morning, and leave off at about the same hour in the evening. The last batches baked are carefully packed in an air-tight apartment, where they remain all night, and are taken out next morning in that wholesome and palatable condition in which a loaf that has been baked four or five hours and left in the open air will be found. The first batches baked in the morning are ready for delivery about nine o'clock, and those who wish for hot bread once a day, can have it with their tea at six or seven in the evening—a fact which many persons are finding out and taking advantage of.

The success of this experiment in day baking has been so complete and signal, that there are rumours rife in Dublin of its being the intention of some of the leading master bakers to follow the example of the Dublin Joint-Stock Society. We hope this may be the case. If so, and if the system should become general, it will be another and by no means an insignificant triumph achieved by Co-operation in the field of humanity, and will be a subject of life-long satisfaction to the few working men who set on foot the project, at one time seemingly hopeless, of a Co-operative Day-bakery. Now that the real difficulties have been surmounted, the duty of every one is clear—of the master baker to discontinue night-work; of the public to discontinue eating at breakfast hot bread, which cannot be produced except at a sacrifice of comfort, and health, and life which it is appalling to contemplate. We have now done our duty in pointing out the evil and the remedy. It rests with our readers to say whether they will remain under the guilty responsibility of being accessory to the early death of so many of their helpless fellow-citizens.

Coal Oil.—Coal oil is a better article for preserving sodium and potassium than naphtha. In coal oil sodium keeps its lustre for months and years, whilst in the purest naphtha it is dimmed in a few days.

Facts and Memoranda.

Rich silver mines, it is said, have been discovered in Hanover County, Va.

A curious type-setting match recently came off at Iowa City, Mr. A. J. Kenny, of the Iowa City *Press*, and Mr. O. B. Bell, of the Council Bluff *Nonpareil*, each setting four thousand ems solid bourgeois in two hours.

In making heavy forgings the effect of the blows of a steam hammer is found to produce a singular form of internal hollowness or unsoundness at or about the centre of the mass where it may have been previously sound.

In fourteen English towns of second-rate magnitude, 24 gallons of water a day are supplied to each inhabitant. In Manchester, 20 gallons; in Liverpool, 30 gallons; in London, 50 gallons; in New York, 300 gallons. Ancient Imperial Rome received from 300 to 340 gallons per head daily.

The alcoholic beverages, exclusive of cider, British wines, and home-brewed beer, on which we paid duty during 1862, amounted to 373,000,000 gallons, or sufficient to fill a canal 3 feet deep, 6 feet wide, and 640 miles long; that is, 40 miles in excess of the distance from Land's End to John o' Groats.

Imports of Corn.—In the year 1862, we imported 16,000,000 quarters of corn, or sufficient to build a wall 13 inches thick, 20 feet high, and 1,460 miles long; that is, the perimetre of the triangle of which the Land's End, the North Foreland, and Dunnet Head are the angular points. The flour and meal imports were 360,000 tons.

Bones.—The quantity of bones imported into the United Kingdom continues very considerable. In the first three months of this year the aggregate imports were 12,472 tons, as compared with 7,850 tons in 1865, and 14,424 tons in 1864 (corresponding periods). Liebig, the great chemist, asserted recently that all Europe was ransacked to supply England with bones.

Water, in passing from the solid to the liquid state, converts 140 degrees of sensible heat into latent; in passing from the liquid to aëriform condition, it absorbs 1,000 degrees of heat, rendering it latent. Alcohol, in evaporating, absorbs 374 degrees of heat; ether, 163 degrees; and spirit of turpentine, 138 degrees.

A useful bill, protecting immigrants, has just passed the American Congress. It establishes immigration offices in Boston, Chicago, New Orleans, San Francisco, Baltimore, and Philadelphia; provides that males unaccompanied by females shall be separated from the rest by a bulkhead; for disinfectants and the sanitary care of passengers; for limitation of the number of passengers on any ship; and for the punishment of any captain importing a convict.

The Rag Business in New York.—Mr. M'Knight, a prominent rag-dealer, has asserted that the rag business in New York city amounts to 50,000,000 dols. annually. There are 10,000 persons employed in the business, and funerals among them are said to be very rare. It was stated by Mr. Thomas Jackson, who has been in the business forty years, that although rags from pest-houses carry with them pestilence, nevertheless, if the business is well managed, with proper disinfectants, it is not necessarily dangerous.

Lucifer Matches.—The manufacture of lucifer matches has always furnished a problem the solution of which both science and philanthropy have long been seeking to discover. The lucifer match is recognised as an enemy which every man finds ready to deal at his hearth, when least expected, the most dreadful death amongst his household. M. Gaillard has just presented to the Académie a method by which all danger is obviated. The novelty consists in simply dipping the matches into sulphur after having plunged them into the phosphorus; the sulphur, being insoluble in water, prevents the phosphorus from dissolving in alimentary liquid matter, so that all danger of poison is avoided, while the more powerful friction necessary to cause combustion will be the surest guarantee against fire.

Consumption of Beverages, &c.—In the year 1865 the quantity of tea retained for home consumption in the United Kingdom, ever advancing, rose to 97,834,600 lb., averaging 3·29 lb. per head of the population, and bringing to the revenue an average contribution of 2s. 1¾d. per head; but the duty is now reduced to 6d. per lb. The consumption of coffee, which has been declining for some years, fell to 30,505,872 lb., averaging 1·02 lb. per head, and a contribution of 3d. per head to the revenue. The consumption of sugar increased, and averaged 39·89 lb. per head, and a contribution of 3s. 5¾d. per head to the revenue. Of tobacco 1·31 lb. per head, and 4s. 2d. to the revenue. Of malt 1·587 bushels per head, and 4s. 2¾d. to the revenue. The consumption of wine and spirits increased. 11,993,760 gallons of foreign and colonial wine were retained for consumption, averaging 0·40 gallon per head, and 11d. per head to the revenue. Foreign and colonial spirits 6,732,217 gallons, averaging 0·23 gallon per head, and 2s. 4d. per head to the revenue. Home-made spirits 20,711,155 gallons, averaging 0·695 gallon per head, and 6s. 11¾d. per head to the revenue. Therefore, on tea, coffee, and sugar the year's taxation amounted on an average to 5s. 10½d. per head of the population; on spirits, wine, and malt, to 14s. 5½d.; on tobacco, 4s. 2d.

Textile Manufactures of England.

BY WILLIAM ROSSITER, HISTORICAL SCHOLAR OF WORKING MEN'S COLLEGE.

V.—GENERAL VIEW OF THE MANUFACTURES.

(Continued.)

The great centre of our spinning and weaving is Manchester, with which Liverpool should always be coupled, since—though thirty miles apart—they are really but the two halves of one great whole. The population of Manchester is nearly, if not quite, half a million in number; that of Liverpool, over 300,000. Numerous other towns are worthy of special mention, but the following table will show what counties have manufactures of textile fabrics, and the peculiarities of each, together with the names of the more important manufacturing centres. The table is compiled from the facts given in Brewer's "Historical and Geographical Atlas:"—

COUNTIES.	TEXTILE MANUFACTURES.	IMPORTANT TOWNS.
ENGLAND.		
Cheshire	Cotton and silk	Stockport, Macclesfield.
Derbyshire	Cotton, hosiery, lace	Derby, Cromford
Durham	Woollen, cotton, linen	Durham.
Lancashire	Cotton (of all kinds), coarse cloths	Manchester, Stockport, Bolton.
Leicestershire	Hosiery and lace	Leicester.
Norfolk	Shawls, crapes, silk, wool	Norwich.
Nottinghamshire	Hosiery and lace	Nottingham.
Oxfordshire	Blankets	Witney.
Warwickshire	Ribbons	Coventry.
Westmoreland	Cotton and coarse woollen	Kendal.
Wiltshire	Broad cloth	Trowbridge.
Worcestershire	Carpets	Kidderminster.
Yorkshire	Woollen cloths, carpets	Leeds, Bradford, Halifax.
WALES.		
Montgomeryshire	Flannel	Newtown.

A factory is, generally speaking, a square-cornered, four-sided building, of from five to seven stories high, with very little, if any, of ornamentation about it. Each story is usually a plain room of four walls, a floor, and a ceiling, with literally no fixtures whatever. Each room is devoted to one of the several processes of spinning, weaving, &c., being, as a rule, full of the machinery adapted for that particular process, with only spare room enough for necessary walking about.

The whole of the machinery is moved by either one large, or two small engines, varying in total power, from 40 to 100 horse power. Generally a long shaft runs through the entire length of the building, with which the different machines throughout the mill are connected by bands. This machinery does the actual work of the entire series of processes, the hand labour being only necessary to keep the machinery supplied with material, to mend broken threads, take away finished work, &c. Besides thus doing the actual work of spinning or weaving, &c., the steam-engine also works, generally, a "lift" or "hoist," that is, a square wooden box or cage, in which the workpeople, managers, materials, &c., can be raised or lowered to any part of the floors of the building. The workpeople themselves are also supplied with hot water at breakfast-time, by means of a boiler heated by steam pipes from the engine pasing through it.

The number of persons employed in a mill, whether for spinning, weaving, cotton-printing, &c., is generally very considerable, varying from 300 in a small mill to 1,500 or nearly 2,000 in a large one. The wages average some 30s. for men, 12s. to 16s. for women, and 5s. to 8s. for children; the hours of work are from six in the morning till six at night, with half-an-hour allowed for breakfast and one hour for dinner. The hand-work is scarcely in any case laborious, but requires constant attention and care. The machinery possesses everything but judgment: this must be supplied by those who are looking after it.

In a spinning-mill, the only processes are those required for converting the bales of raw cotton, wool, &c., into long threads fit for weaving. These threads are called "yarn," and are of many different degrees of fineness. In a weaving-mill, the only processes are those required for making the long threads, or yarn, into fabrics of different kinds. In very many cases, however, the same mill is both a spinning and weaving mill, and

the raw material entering the building leaves it only as the finished fabric, ready for use. The capital required to set up a mill, whether for spinning or weaving, or both, is considerable. Besides the cost of the building itself, and of the engine and gearing to convey the motive power to the different rooms, there is the very heavy expense of the numerous machines used in the different processes; the number of each varying from a few up to two or three hundred, and the cost of each from a few pounds up to hundreds.

In these mills the raw material goes through very similar processes, whether it be cotton, wool, or flax. Silk is treated somewhat differently, on account of its being already in long threads.

The chief processes, speaking generally of all fabrics, are

1. Preparing the raw material for spinning.

This varies much with the material, but may be generally called cleaning and opening. Cotton is opened and dusted, wool is washed, flax is steeped and split up into finer fibres, silk is unwound from the cocoons in which it is spun.

2. Carding, or arranging the short fibres into a long "roving," or thick loose rope.

This applies only to cotton, wool, and flax. The short fibres are combed out, so as to lie all in the same direction, and by gentle pressure in drawing them between two rollers, they are made to adhere to each other sufficiently to form a continuous loose rope, called a "roving."

3. Spinning, or twisting.

By this process the rovings are twisted into a fine thread. They are thus made of sufficient strength for weaving, or for use for sewing. Each short fibre being tightly twisted with many others, a strong thread can be made of any required length.

4. Weaving.

By this the threads are made into the innumerable fabrics, known as calico, cloth, canvas, silk, linen, cambric, carpets, blankets, muslins, &c. The two sets of threads thus woven together are called—the one, the stronger of the two, running along the cloth, the *warp*; the other, less strong, running from selvage to selvage across the cloth, the *weft*.

5. Printing, dyeing, &c.

These processes are innumerable, and as different as they are many. Generally, it may be said that by means of chemical action the fabrics are made to assume different colours, these colours being generally arranged to represent ornamental figures.

Each of these processes, as well as the subordinate ones, will, in another paper, be spoken of more fully, as well as the machinery by which they are carried on.

TRADES UNIONS.

Although the workmen's unions cannot raise the rate of wages, yet they are for some other purposes a powerful institution; they have promoted free thought and free action amongst the hand-working classes, and, moreover, have taught them to respect the law, and rely upon moral means for obtaining what they believe to be right. We have now no bloodshed, no rioting, scarcely an angry word in the bitterest and most protracted strikes. Although we owe this salutary change partly to the improved education and the higher moral tone amongst the labouring class, we owe it much more to the direct and immediate influence of Trades Unions.

The great objection to workmen's unions is the secrecy with which their proceedings are conducted. Secrecy on the part of the men, and hostility on the part of the masters, are both emanations from the state of feeling which existed under the Combination Laws, when men had their pass-signs and watchwords, and masters their treadmill. Now freedom of association has become the law, men should throw off secrecy, that badge of servility and coercion. So long as the controlling influence of any branch of labour is a secret committee, it can have no open negotiation of difference, for masters know that those who offer to treat, although really principals, yet are practically only agents with authority limited to the execution of the orders issued by a superior power. Unless the wire-pullers can be addressed, it is of no use talking to the puppets.

So long as Unions act in secret, they will remain under the ban of the masters, and being so, men in good work must either refrain from joining the Union, or join the Union secretly, and so feel the humiliation of duplicity; or do, as many thrifty workmen do, join the Union and contribute to its funds, without forcing themselves upon the attention of the masters by taking a conspicuous part in managing its business. This last course leads to the worst condition of workmen's societies—that in which its affairs are left to the control either of a distant committee, or of those men of restless and erratic genius, some of whom are found in every class of society, and who, attached by a very slender thread to their regular occupations, have an ever-active desire to distinguish themselves in a more exciting occupation. Such men may gain great celebrity in other respects, but they are seldom highly esteemed as workmen. So far from its being a discredit for a good workman to be placed in a position of representative trust, it is, and ought to be, regarded by all parties as an honour conferred upon him. It ought to be proof at once of private worth and public usefulness; and then a master might be proud of having the chairman, secretary, or committee-men of the Union in his employment.—*Rupert Kettle on "Strikes and Arbitrations."*

GRASS AND FLESH.

When grass becomes flesh, as it does in the ox, a good deal of useless matter is got rid of, and the true food in the grass is stored up by the ox in one part or other of its carcass. That part which forms the edible portion of the animal, and which is generally called beef, has been sifted, so to speak, by the ox from the dross accompanying it in grass, and the true golden material—the portion really useful to man—is presented to us in the form in which we can, with least work to ourselves, make a proper use of it. What is stated here of the ox applies also to the sheep, goat, the deer, and, indeed, to all the animals on which we feed, and which, in their turn, live upon grass.

The ox, sheep, &c., aid us in preparing our flesh by taking the crude material, grass, and so treating it that they disentangle the good from the bad, and hand over to us only that which can be useful to us. We may live upon grass, or parts of grasses, such as the seeds, but it requires a greater degree of force for us to form our flesh from such food than from an animal diet, as in the latter case a part of the work has already been done for us in the stomachs of the ox and the sheep.

Living on a diet consisting in part of animal food is a saving to our digestive powers, and a saving of work implies a storing up of force. Each man in a healthy condition has a stock of force, which he can expend in manual labour at the anvil or elsewhere, or in thinking, writing, or speaking. In either case the force so expended may be the direct means of procuring bread for himself or his household.

To *think* and to *work* are, in popular language, so separated from each other, that at first sight they appear quite different in all their relations; but the thinking or mental powers, and the bodily or physical—in other words, the thought and the arm—draw on the same bank or stock-in-trade. They are two partners in the same concern, and the more there is squandered on the one, the less there is left for the other. And thus the smaller the force which is expended in the digestion of food—and of all work, stomach work is the hardest—then the more force or power there remains for the exercise of thought.—*Macadam's Chemistry of Common Things.*

WASTE OF COAL.

There are several systems of getting coal, which, for want of space, we are unable to describe. A comparison of these with each other would clearly show that, while loss takes place in all, they differ considerably as to the degree of waste. In the "long wall" system the whole of a seam is extracted at one getting, no ribs and pillars are left, and the roof, with all the superincumbent strata, falls gradually as the work of extraction proceeds, filling up the space previously occupied by the coal. Theoretically and practically this system is the best; but in some collieries, where the roof is bad, it is absolutely necessary to leave a considerable layer of coal for the purpose of forming a secure roof, and the whole of that coal is irrecoverably lost. In the "pillar and stall" system the coal is extracted in two gettings. In the first, large ribs and pillars of coal are left to prop up the roof of the pit, and these are taken out at the second getting; but in this second process there is always much loss, owing to the crushing of the ribs and pillars by the enormous weight upon them, and the consequent production of a large quantity of fine, and, if the coal be non-caking, worthless slack. Of all the coal-seams of Great Britain, the greatest waste has occurred in that known as the "ten-yard" or "thick-coal" of South Staffordshire. The seam ranges in thickness from eight to ten yards, and is composed of a series of distinct beds, varying much in quality. It is now on the eve of exhaustion. With very few exceptions, it has been gotten on the "pillar and stall system," huge pillars about ten or twelve feet square and enormous ribs, being left in the first working. The residual coal was imperfectly extracted in a second working; and some of the old pits have been thus rifled over several times in succession. This coal is wholly non-caking, and it may be confidently asserted that millions of tons of this slack now lie buried in the worked-out collieries of South Staffordshire, it is to be feared without hope of resurrection; yet every ton of that slack has stored up in it as much heat-giving force as the same weight of solid coal! The fine slack of this coal is particularly liable to spontaneous ignition, which has often occurred in the first getting, and very frequently in the second. It is the curse of the "thick coal," and has occasioned the destruction of a large amount of property and great pecuniary loss. In some cases the "thick coal" has been extracted on the "long wall" system in two, or even three gettings, and with a much larger yield per acre; but as this seam is in many localities greatly disturbed by faults, it is probable that the "long wall" system would not have been generally applicable, for reasons that will be immediately appreciated by colliery engineers, though not by the general reader.

It is a fact known to every well-informed colliery engineer in the kingdom that the working of this fine coal-seam, far exceeding in thickness any other in Great Britain, has, for the most part, been entrusted to unskilful and often unscrupulous persons. Indeed, at one time even the bare mention of the term colliery engineering in South Staffordshire was regarded as a joke, and excited sceptical laughter; but it was no joke, either to proprietors, lessees, or the nation. It is scarcely possible to over-estimate the destruction of coal which formerly resulted from a combination of ignorance and roguery. All this is perfectly notorious both in South Staffordshire and elsewhere. It is not pretended that there have not always been honourable exceptions to this censure, or that in this county colliery engineers do not now exist as well instructed in their art and as upright as can be found in any other part of the kingdom. There are, happily, many such, and they are well known and appreciated.

The specific gravity of the South Staffordshire coal is stated to be about 1·3, so that a cubic yard should weigh 2,190·24 lb., or nearly the statute ton of 2,240 lb. Hence, inclusive of thin layers, termed partings, an acre of the "thick," or "ten-yard" coal should contain somewhat less than 48,400 tons, and an acre of the same coal eight yards in thickness somewhat less than 38,720, say 38,000 tons. Now, it is certain that, on the average, *at least* one-third, or 12,000 tons per acre, have been irremediably lost from the mode of getting as previously described. But, as usual, where God has been most bountiful, man has been most prodigal. Imagine that enormous store of force, which, as we have seen, it may have required millions of years to accumulate, not only lost, but in great measure needlessly and wickedly wasted. Warning, alas! comes too late, for the mischief is done, and the nation has been robbed of what never can be restored.—*Quarterly Review.*

Things Talked About.

Mr. Clay's Educational Franchise Bill, which has been so well discussed in our Correspondence columns, has been very warmly debated in the House of Commons, and its fate is as yet undecided. A division on the question of the second reading was evaded on Wednesday evening by the familiar process of "talking against time." All our readers are perhaps not aware that in the House on Wednesdays all discussions are adjourned at a quarter to six o'clock, so that if either the advocates or opponents of a measure feel themselves too weak in the state of the House to hazard a division, they have only to put up some of their long-winded speakers, who keep the game alive till the hands of the clock point to the fatal fifteen minutes to six; then a week must elapse before the subject can again come on, and as the business of the succeeding Wednesday is already arranged, most possibly the measure is indefinitely shelved. Such may be the fate of the Bill which proposes that every man of mature age, and unconvicted of crime, shall, if he can read, write, and cipher, be entitled to the franchise. It was singular to hear the very same politicians who, a few weeks since, were horrified at the idea of a few thousands of working men being admitted to the franchise, warmly supporting a measure which proposes the nearest approach to universal suffrage ever broached in the British Parliament.

But it was more amusing still to hear Mr. Gladstone, who, like Michael Cassio, is "a great arithmetician," tell the House that he did not believe thirty members in it could work a sum in the division of money. If the Chancellor of the Exchequer is right in his supposition, it speaks ill for the intelligence with which the estimates are discussed. And, perhaps, if Mr. Clay's measure should be carried, it would be as well if the candidates, as well as the constituencies, were subjected to an interview with the arithmetical examiners. Mr. Gladstone proposed a test question: "He would like to know how many members of that House would be able, say to divide £1,330 17s. 6d. by £2 13s. 8d." "It is not to be done; it's impossible," called out Lord Robert Montagu, the member for Huntingdonshire, M.A. of Trinity College, Cambridge, and author of a work on naval architecture. "But it can be done," replied the Chancellor, and he adroitly clenched the argument by the instance afforded:—"One illustration is worth a thousand arguments. Here is one of the financial authorities of the House telling us that such a thing cannot be done." Clearly, Lord Robert would not pass Mr. Clay's examination, if Mr. Gladstone's poser were propounded.

And a poser it is at first; but examined carefully, the problem is simple enough, and any engineer familiar

with the sliding-rule would not hesitate over it a moment if differently stated. The question is simply, "How many sums of £2 13s. 8d. are there in £1,330 17s. 6d.?" Simple reduction and division will give the answer, and there are shorter, if more complex, methods of arriving at the same result. The answer is $495\frac{23}{33}$, or £2 12s. 6d. over.

It is anything but satisfactory to know that just at this time, when there are political and commercial convulsions at home and abroad, when funds and markets are falling, and no man can say what another week may bring forth to affect trade and manufactures, that the almost absorbing topic connected with the condition of the working man is that strikes are everywhere prevalent, and that there is—at present, at least—very little chance of the objects for which the men are striving being obtained. The Sheffield file-grinders, it would seem, have by their determined opposition to the introduction of machinery really precipitated the evil they have been most desirous to avoid. Messrs. Chubb and Son, the lockmakers of St. Paul's Churchyard, have published an extract of a letter they have received from one of the first firms in the file trade. The writer says:—"We have already succeeded in introducing a machine that will efficiently grind files, and are now at work building other machines for forging and cutting them, so that in a short time we hope to be in a position to fill orders better than ever. In the meantime the workmen are making a national subscription to keep them out, but in the end they will find that it was a bad day for them when they left off work." From Glasgow to Greenock, on the Clyde, the principal shipbuilders and engineers have decided on a lock-out. At Liverpool and the Port of London sailors are on the strike; and we regret to add that, on the former part, some cases of intimidation have occurred. The Mercantile Marine Stokers' United Friendly Society asserts that its rules against intimidation are very stringent, and provide that any member convicted of intimidating a non-society man shall be fined 10s. for a first offence and 20s. for a second, while, should he be convicted of a third infringement of these regulations, he will be expelled, and forfeit all claims on the society. This is as it should be. Violence is the very worst argument, and will inevitably alienate popular support from what may be in itself a most meritorious cause.

In London, a "London Seamen's Protective Society" has been formed, and many members have been enrolled. For voyages to Australia, New Zealand, and elsewhere round the Cape of Good Hope, an advance of 10s. a month is claimed; and, in some cases, to avoid detention of the vessels, the advance has been given. The following scale is demanded by the Protective Society:—"Steamships, £5 per month for the Baltic and North America; £4 per month for the Mediterranean and ports southward of New Orleans; 5s. per day for daily wages, and 8d. per hour overtime. Sailing ships, £3 10s. per month round either of the capes; £4 10s. per month, with or without advance, for all western voyages; £3 10s. per month for the West Indies, Mediterranean, and south of the Line; 5s. per day for daily wages, and 8d. per hour overtime." In the course of the discussion of the subject, it was mentioned that the boarding-house keepers would assist the men while they were holding out for the advance, if any should be turned out of the Sailors' Home. May we venture to suggest that the keepers of sailors' boarding-houses, as an antidote to whom the Sailors' Home was established, are not probably the best advisers the men can have?

A case of some interest to members of provident societies has been heard at the Mansion House. Mr. Edward Sayer, the secretary to the benefit society called the "Brewers', Chester and Galley Quays' Provident Society," attended before Mr. Alderman Besley, to show cause why one of the members, named James Foley, who had been expelled from the society, should not be reinstated as a member. The complainant was a labourer at Scovell's Wharf, and it appeared that on the 4th of April he had the misfortune, while employed at his avocation, to break his collar-bone, and he applied to the society for the usual allowance. Accordingly, he was paid £1 a week as a first-class member, and this sum was continued until the 7th of May, when it was stopped, and a meeting of the committee of the society was convened, and he was expelled, on the ground that, in contravention of the 19th rule of the association, he had been at work while receiving the allowance from the society. The committee of the society, it appeared, had acted upon hearsay, and had not allowed the complainant to be present when the matter was discussed. Had he been questioned then, he would have been able to prove, as he did before the alderman, that the statement as to his being at work was quite unfounded. An order was made for the reinstatement, and that the amount to which he was entitled should be paid to him from the period at which the allowance had been stopped. Precipitancy is always an evil; and the utmost fairness and consideration should be shown in such cases where, by undue haste, or refusal to listen to explanations, great wrong may be done to industrious and provident men.

Art unions, by which many of the upper and middle classes are able to obtain possession of choice specimens of art for the adornment of their homes, have been hitherto out of reach of the working classes, who would gladly have a good picture or a statuette if it could be brought within their means. An International Art Union has been started, which offers prizes varying from 5s. to £100 in value for 1s. subscription. Lord Teynham is at the head of the directorate.

A gold medal has been awarded by the French Minister of Public Works to a Liancourt firm for the construction of a steam coach to run on common roads. This steam coach, we are told, lately descended the hill from Laon to the railway terminus at the rate of five miles an hour, and afterwards ascended the same hill in eight minutes with a weight of five tons. The trial was repeated with so much success that it is now ascertained the steam-engine can draw a weight of thirty tons on an ordinary road at the rate of from three to four miles an hour.

We must, it seems, keep a sharp look-out for the security of our pleasure-grounds. A portion of Greenwich Park is now threatened by the authorities of the Admiralty, who propose to let it on building leases. It is not a large plot, certainly, but too large to be spared from a public park. Besides, a principle is involved; and we are therefore glad that Mr. Alderman Salomons has taken up the matter, and that strong representations will be made to the Admiralty on the subject.

Co-operative Intelligence.

CHESTER-LE-STREET.—At the fourteenth quarterly meeting of the Chester-le-Street Co-operative Society, the secretary, Mr. James Wilkinson, read the report, which showed the receipts to be £2,628 0s. 8½d., being an increase over last quarter of £499 19s. 10d., which enabled the committee, after allowing five per cent. on all paid-up shares, to reduce the fixed stock £20 8s. 4½d., and to declare a dividend of 2s. to the pound on members' purchases. Fifty-eight new members have been enrolled during the quarter, and sixteen have withdrawn, showing an increase of forty-two, which makes a total now on the books of 313.

DUNSTAN CO-OPERATIVE STORE.—The fifth annual *soirée* of this store was held on Whit-Monday, when the secretary, Mr. William Marshall, read the annual report, which showed the society was in a very flourishing state. The income for the last year was £6,023 0s. 1d., being an increase of £428 16s. 9d. on the previous year. There has been paid during the last year £38 7s. 10d. for reduction of fixed stock, £35 11s. interest on members' capital, and £372 4s. divided on members' purchases, besides £20 4s. 5d. on non-members' purchases. Since the society commenced in 1860 there has been taken £21,277 1s. 10d., leaving a clear profit of £1,806.

General Information.

CLUBS AND INSTITUTES.

MARKET DRAYTON.—A public meeting was held in this little town on the 29th ult., to call attention to the Working Men's Club recently formed there. The chair was taken by Dr. Saxton, and the meeting was addressed by the Rev. Henry Solly, of London. Harcourt Griffin, Esq., of Pell Wall—a beautiful estate in the neighbourhood; his brother, of the Royal Artillery; A. W. Radford Norcop, Esq., of Bettonhall; and Messrs. Onions, Wilkinson, and Rodenhurst (proprietor of a large iron foundry) were on the platform, and, with Dr. Saxton, take a warm interest in the movement. Mr. Horner, solicitor, gave an interesting account of the Duck Lane Club, Westminster. Mr. W. Talbot, the secretary, a working man, moved the usual votes of thanks, which were passed with acclamation.

NEWPORT, SALOP, WORKING MEN'S CLUB.—A large and crowded meeting was held in the Town Hall on Wednesday evening, the Rector, the Rev. D. Mountfield, in the chair. Various songs and recitations were given with excellent effect in the course of the evening, and the Rev. Henry Solly gave a description of the advantages these clubs are conferring on working men and their homes in various parts of the country. A considerable portion of the audience consisted of the fair sex, who seemed to enter thoroughly into the spirit of Mr. Solly's statements; and a large number of working men were present, who, it was said, had never attended any previous meeting, either for the Club or for the Penny Readings. The main secret of the success of these present attempts was, that the town was divided into districts, and a number of gentlemen went round to the homes of the working men, offering free tickets of admission to those who liked to take them. Nearly 700 people were present. The Rev. Henry de Bunsen, Rector of Lilleshall, C. C. Walker, Esq., and J. Bodenham, Esq., Manager of the Bank, were on the platform; and on the following morning several clergymen and large employers of labour assembled at Mr. Bodenham's house for a conference with Mr. Solly on the subject of Working Men's Clubs, the chair being occupied by the Rev. Henry de Bunsen.

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* WORKING MAN, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*
We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

WHAT TRADES UNIONS MIGHT BE.

To the Editor of the WORKING MAN.

SIR,—The WORKING MAN contains (19th May) some communications of much interest, which deserve to be considered together, for the lessons they convey as to what Trades Unions, properly managed, keeping up a good understanding with employers, ought to secure for the good of their members.

Grouping the subjects together, we take first those relating to workmen's dwellings: "Working Men's Building Societies;" "As the Home, so the People;" and "The Workman's City"—the last a most interesting account of what the Brothers Japy, of Beaucourt, Haut-Rhin, have done for the comfort of their working people's dwellings. The high value of land here may prevent anything like the space there mentioned from being given to each workman's home in England; still there is much in the general features of the plan, and in some details of comfort, that might well be copied, in its enviable contrast with too many of the hovels and wretched cottages allotted to our labouring classes. In many cases it is absolutely needful that the homes should be provided by the masters, to combine lodging for large numbers near their work with the needful freedom of removal when the men change employment. Here the Trades Union should carefully watch that the houses so provided are healthy and comfortable, and the rents moderate. This is the proper business of the Union, and cannot so well be cared for by each individual acting for himself. The masters would be forced to attend to the reasonable demands of a body representing all their workmen who claimed good air and water, with home comforts; and would find it their interest to plan buildings suited to the wants of their men, when they saw that the lodging was as well cared for by the Trades Union as the wages. In cases where it answers best for workmen to own their own dwellings, their Trades Union should either be a building society on the best system, or be so connected with such a society as to give the fullest advice and help to the members in all details, enabling them to have healthy, comfortable homes for far less cost than they now too often pay for mere fever dens, where it is all but impossible to rear a healthy family.

2. As to skill and machinery, the articles on the "Origin of Trade Guilds" and the "Trades Unions of Sheffield," as well as that just noticed on the works of Messrs. Japy, are well worth attention as to these matters. Trades Unions ought to take the place of the Guilds of former times, having periodical exhibitions, and giving prizes to keep up the high character of English work, for this is the only certain ground for the permanent security of high wages. The superiority of English work gives our workmen the best kind of monopoly—that founded on high skill and thorough completeness of all they turn out in every department. As long as no master can employ foreign hands to any extent without the risk of some inferiority or shortcoming in their work, so long are our trades and manufactures sure to be permanently prosperous, far ahead of all competition. The fund for payment of wages depends on this prosperity. All that Trades Unions can do is to help the workmen to secure his fair share of this profit. They cannot create or increase the trade profit which nourishes this wages fund, except as above pointed out, by keeping up the character of English work above all rivalry. The account of the hollow ware manufactory of the Messrs. Japy deserves their careful thought, as proving the sheer folly of resisting the introduction of machinery or of any improvement, from a shortsighted, mistaken notion of thereby protecting their interests. All the effect of such folly is sooner or later to enrich foreign lands at the expense of our own country, by creating establishments like those of Messrs. Japy to compete with and under-sell us. In this respect the Americans are far more enlightened. They know the value of machinery and new inventions, as securing that manufacturing prosperity which pays the highest wages. Therefore, until our English Trades Unions are equally sensible and well-informed, we shall always compete with them at a great disadvantage in many respects.

3. What is now taken to be almost the sole function of the Union—the regulation of work and wages—is (though they have, as we have noticed, other most important duties) nevertheless their main aim and business. For this they are called into action and kept in existence. If they fail here, they are almost helpless for good in any other way; and on the other hand, when their wise conduct keeps their members prosperous and contented, their power, warily exercised, is of vast extent. The article "Out of Work" has a strain of truth that must come home to the feelings of all who know anything of the real life and fortunes of working men; and the several notices relating to emigration suggest many of the most important duties of Unions hitherto too frequently neglected. Much has been and is daily written about supply and demand applied to labour by half-informed people, either mistaking the indisputable truth and facts of the case, or fancying they refute them when exposing absurdities, in reality wholly of their own creation, from drawing extreme and false conclusions from true premises. In all these instances, the fallacy once pointed out is too glaring to bear a moment's reflection. Unions are daily growing wiser in this matter, often from bitter experience, but they have yet too generally much to learn. The great point is to get fast hold of true principles, and follow them fearlessly, without pushing them beyond the safe ground which alone

can give sure foundation. It is childish to deny the manifest truth that rates of wages and full work depend mainly on the proportion between the numbers competing for employment. The Trades Unions are right in keeping this steadily in view. Their most dangerous error lies in mistaking the extent to which they have power to regulate this supply and demand, and the means they employ for the purpose. No safe action can be taken at any point that is not based on some knowledge of the real state of the trade, and some sagacity in computing its present and future prosperity, on which all security of work and wages must depend. It is true, as Mr. Kettle remarks, in the extract quoted by you (26th May), that wholesale indiscriminate emigration, rashly undertaken, is almost always disastrous. But this is a widely different matter from systematic proceedings founded on full, accurate information, and carefully kept in proper bounds by an active and intelligent Trades Union. If these Unions discharged their functions properly, your pages could not be taken up with discussions as to differences of net earnings, taking rates of wages and cost of living, between Canada and the States. If proper care was taken to procure trustworthy letters, brought down to the latest moment, the purchasing power of States notes compared with Canada coin, and all relating to the condition of workmen in both countries, would be known and computed to a farthing. And just as accurate information would be regularly procured as to work in every quarter of our own country, our colonies, and, as far as possible, for the Continent. This is the sound basis for regulating the supply and demand of labour to prevent local differences to the injury of the workman. Thus the managers of Unions would know beforehand all the chances masters have at any time of getting work done on much lower terms than the current wages. To this point the rate of payment will surely tend, sooner or later, like a scale finding its balance after many vibrations, and on the fixture of this point depends the certain holding of any advantage workmen may for a time have secured. Thus would be avoided the mistake the ironworkers made, who have just returned disappointed from the United States; and the vast savings from preventing ill-advised quarrels with their employers would enable Trades Unions to found and keep up such flourishing benefit societies as that of the Amalgamated Engineers, noticed by you (26th May). Perhaps, also, prosperous Unions could eventually extend their support to cases of temporary loss of work by members who had contributed to their funds for a given period, or make, under fixed regulations, advances to help emigrants in special cases. A Trades Union, opulent and wise enough thus to support its members, would never be driven to waste money in strikes. As they would never be so foolish as to demand what is wholly unreasonable, they would soon find the masters fully alive to the necessity of avoiding collision with them by every concession which the state of trade would allow.

We are well aware that this sketch of something like a perfect Trades Union is, in many respects, very far in advance of anything existing at present. Let all members, however, steadily keep in view these benefits which a good Union ought to secure for them. If the next twenty years see as great advance as the last twenty have made, most, if not all, of these fruits of wisdom and moderation would be tasted by English associated workmen, to a degree unknown in any other land, or at any time, past or present, of which we have any record. C.

31st May, 1866.

REMINISCENCES OF PRINTING ABROAD.

To the Editor of the Working Man.

Sir,—Please to be informed by one of the most earnest, if one of the humblest, of the supporters and recommenders of your valuable journal, how much he has been pleased with most of the articles which have recently appeared therein, but more especially with that in No. 20, printed on page 314, headed "The Language of the Workshop."

What its well-informed writer observes—no doubt truly—regarding the foreign origin of the names designating the various tools employed by working goldsmiths among English-speaking populations, my own experience bids me say is yet more applicable to the technical terminology of my own profession—namely, typography; for I shall scarcely assume too much in declaring that a majority of the names for most of the tools, implements, &c., used by operative printers of universal Saxondom, within and beyond seas, are purely French.

This fact was agreeably, because conveniently, made apparent to me upon my obtaining a situation as a working printer, soon after my arrival in Paris, at the establishment of the Didots—a family of typographers of European fame. And scarcely had I crossed the threshold when, on being welcomed by the *doyen** (dean) *de la chapelle*, an intimation was made that a "bevenue" (*bien-venu*) is usually expected from every in-coming stranger! This first mention of our household word, a typographic "chapel," in a French office did, I must own, rather puzzle me; for had I not (as all or most English printers are) been persuaded to believe that their predecessors, in times remote, adopted said term to commemorate the circumstance that Caxton began his labours as a printer in a Westmonarensian disused chapel?† On proceeding to work, I soon found, as already intimated, that most of the tools and appliances I handled, or saw others around me use, had (as I thought in my simplicity) *English* names! the very reverse being the case. In proof of this assertion I herewith append a score or two names of tools, &c., set down at random from experiences first made some forty years ago:—

English.	French.	Uses, etc.
1. Balls (pair of)	*Balles (les)*	For inking types.
2. Bourgeois	*Bourgeoise*	Kind of types.
3. Brevier	*Breviaire*	Ditto.
4. Canon	*Canon*	Ditto.
5. Case	*Casse*	Type drawers, with 154 cells.
6. Chapel (the)	*Chapelle (la)*	Hands in an office (collectively).
7. Chase	*Chassis*	Iron frame for binding type.
8. Composition	*Composition*	Type set up.
9. Compositor	*Compositeur*	Type-setter.
10. Corrections	*Corrections (les)*	Emendations of errors; alterations.
11. Double (a)	*Doublon*	Faulty repetition of words.
12. Distribute (to)	*Distribuer*	To decompose type.
13. Distribution	*Distribution*	Type for decomposition.
14. Folios (the)	*Folios (les)*	"Heads;" running numbers of pages.
15. Forme (a)	*Forme*	Set-up type, inclosed in a chase.
16. Fount* (a)	*Fonte*	An assorted supply of type.
17. Frisket	*Frisquette*	Light frame auxiliary to the tympan, *which see.*
18. Galley	*Galée*	Kind of type-holder.
19. Impose (to)	*Imposer*	To put pages of type in proper place.
20. Imposition	*Imposition*	The same, when done.
21. Impression	*Impression*	Printed page, &c.; pile of printed sheets.
22. Italic	*Italique*	Italic character.
23. Justify (to)	*Justifier*	To firmly fix lines of proper length.
24. Justification	*Justification*	The same, when rightly done.
25. Mackle (to)	*Maculer*	To print slurringly.
26. Mackled (work)	*Maculature*	Soiled press-work.
27. Mallet	*Maillet*	Wooden hammer for locking and unlocking forms.
28. Matrix	*Matrice*	Letter-founders' die.
29. Minion	*Mignonne*	A kind of type.
30. Nonpareil	*Nonpareille*	Ditto.
31. Octavo	*Octavo* (in 8)	Printed sheet of 16 pages; volume made up of such.
32. Pagination	*Pagination*	Sequence of heads or folios.
33. Paragon	*Parangon*	Kind of large type.
34. Pie	*Pâte*	Mass of type in a chaotic state. [*Pâte* is French for dough, and *pâté* is a pie: the former word best characterises the amorphous nature of the thing.]
35. Press (printing)	*Presse (la)*	
36. Proof	*Epreuve*	Impression of a page, &c., for correction.
37. Quadrat	*Cadrat*	Type-metal blocks for filling up short lines.
38. Quarto	*Quarto* (in 4)	Sheets of 8 pages each; volume composed of such.
39. Quoin	*Quoin*	Small wedge of wood used for locking up a forme.
40. Reader (corrector of proof)	*Correcteur*	
41. Register	*Registre*	Exact backing of pages when printed.
42. Reglet	*Reglet*	Kind of graduated lath.
43. Retiration	*Retiration*	Counterpart form of a sheet.
44. Roman	*Romain*	Ordinary printed characters.
45. Signatures	*Signatures (les)*	Letters or figures appended to pages as indicators to folders.
46. Sorts	*Sortes (les)*	Parts of a *fonte*, more especially types of a peculiar kind.
47. Spaces	*Espaces (les)*	Short-shanked types for separating words.
48. Tympan	*Tympan*	A frame used in press and machine printing for keeping a sheet in its place.

Here I pause, Mr. Editor, in the prosecution of the task I prescribed to myself, as fearing that I have already overpassed such limits of space as you can afford to give in the present case. Should what is now sent he "received," perhaps you may not set me down for intrusive if I present for your indulgent consideration a second communication, supplementary to the foregoing notitiæ, contrasting British and French typography, especially in so far as the interests of its operatives in London and Paris are concerned.—Meantime I subscribe myself, sir, yours obediently,

Typographus Sexagenarius.

Working Man's Club, Peckham, May, 1866.

* This time-honoured functionary is called the "father of the chapel" in our printing-houses.

† "Stowe says that Caxton first exercised the art in an old chapel near the entrance of Westminster Abbey; but a very curious placard, a copy of which, in Caxton's largest type, is now at Oxford, in the late Mr. Douce's library, shows that he printed in the Almonry."—*C. Knight, Nat. Cycl.* As the father of British typography procured his presses, types, &c., in Paris, and engaged French artisans to turn them to account, it necessarily followed that all the technical terms employed by them would be adopted for use by the young Englishmen whom they trained for the continued exercise of the new art.

* *Fondre* (Fr.) meaning *to cast*, and that which is *fondu* being *une fonte*, our typefounder's term, "fount," having no proper reference to *fons* (Lat.), is evidently a misnomer.

TO CORRESPONDENTS.

A Factory Operative.—"Every manufacturer within a month of commencing business is required to send notice to the Factory Inspectors, with information as to the nature of the work he intends to carry on, the nature and extent of the moving power, the name of the firm, &c."—7 and 8 Vic., c. 15. "The hours of work must be regulated by a public clock, or a clock on the premises exposed to public view."—7 Vic., c. 15. "No children under eight must be employed, and no person under eighteen can be employed until his or her name has been registered in a book for the purpose, in form provided by the Act, and to be open to the Inspectors."—7 Vic., c. 15. "Every person under sixteen must have a surgeon's certificate as to health and capacity for labour. The surgeon must be appointed by the Inspectors, who may determine the fees to be paid by the employers."—3 and 4 Wm. IV., c. 103, and 7 Vic., c. 15. "No women or person under eighteen must be employed before six in the morning, or after six in the evening, except six winter months, when the hours may be from seven to seven, of which a month's notice must be given to the Inspector."—16 and 17 Vic., c. 104. "No woman or person under eighteen must work after two on Saturdays."—13 and 14 Vic., c. 54, and 16 and 17 Vic., c. 104. "No child under thirteen must work more than half-days, or alternate days, and on Monday, or every other day every week, must produce certificate of attendance at school on the days or half-days when not at work, and the master must pay for schooling such sum as the Inspector may require, not above 2d. per week, but this may be stopped from the child's wages, if it does not exceed one-twelfth part of such wages. Attendance at school must be between the hours of eight in the morning and six in the evening."—7 Vic., c. 15. "No child, young person, or woman must remain during meal hours in any room where any manufacturing process is carried on."—3 and 4 Wm. IV., c. 103. 7 Vic., c. 15. 13 and 14 Vic., c. 54.

W. L.—Apply to the Emigration Commissioners, Park Street, Westminster.

A Reader.—According to Mr. Smiles, it was on the occasion of the trial of "Boville v. Moore," that Sir John Copley (afterwards Lord Lyndhurst), who was retained in the interest of Mr. Heathcoat, learnt to work the bobbin-net machine, in order that he might master the details of the invention. On reading over his brief, he confessed that he did not clearly understand the merits of the case; but, as it seemed to him to be one of great importance, he offered to go down into the country forthwith, and set himself to work the machine until he thoroughly understood it, "and then," said he, "I will defend you to the best of my ability." He accordingly put himself into that very night's mail, and went down to Nottingham, where he worked at the machine, making a piece of bobbin-net very deftly, until he thoroughly understood the principle as well as the details of the invention. When the case came before the court, the learned serjeant was enabled to work the model on the table with such ease and skill, and to explain the action of the machine with such felicitous clearness, as to astonish alike judge, jury, and spectators; and the thorough conscientiousness and mastery with which he handled the whole case no doubt exercised considerable influence on the decision of the court.

Mechanic.—Original contributions, if accepted, are of course paid for. We shall be glad to see the articles mentioned by you.

O. M. N.—We could scarcely advise you, under the circumstances mentioned, to emigrate, especially when those in your trade are here obtaining such good wages. Employment is more certain in this country.

Work-a-Day.—No; the tramp system is gradually dying out.

J. Palmer.—Your letter has been forwarded to the writer of the article.

J. Johnson.—The Metropolitan, and London, Chatham, and Dover Railways, run Workmen's Trains. The other questions shall be answered in a subsequent number.

Charles Shore.—Thanks for your letter. We wish that all working men would write in the same thoughtful and aspiring strain.

E. G.—There are plenty of cheap works on the subjects mentioned by you.

"WORKING MAN" LIFEBOAT.

(*2nd List of Subscriptions.*)

In accordance with the promise contained in our last number, we beg to announce that all subscriptions above 20s. to the Working Man Lifeboat Fund will be acknowledged when the subscription list has closed.

No subscriptions will be received later than August 1st.

The Silver Medal so kindly offered by the Committee of the Metropolitan and Provincial Working Classes' Industrial Exhibition will be given to the collector of the largest sum.

The Working Man Lifeboat will be exhibited at the forthcoming Metropolitan and Provincial Working Classes' Industrial Exhibition, at the Agricultural Hall, Islington.

	£	s.	d.
Acknowledged in No. 23	23	6	0
W. Bird, Liverpool ..	0	2	6
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W. Clark, Halstead ..	0	11	6
R. Cossey, St. Martin-at-Oak	0	7	4
G. H. Cox, Nottingham(?)	0	2	6
Miss J. Miller, Kintness	0	2	0
E. J. Ford, Blackheath	0	2	0
J. Osman, Bracknell ..	0	15	0
R. Harrison, Spalding ..	0	13	9
The Perseverance Iron Works, Grantham (per R. Barnett)	6	8	0
H. Goldsmith, Eastbourne	0	7	0
W. Dagnid, Sen., By Aberdeen	0	13	6
Alpha Burntisland ..	0	2	8
T. Briggs, Brunoiswick	0	2	0
H. Bond, Lambeth ..	0	2	0
H. Greenwood, Blackburn	0	1	10
Miss L. A. Jones, Aberdulais, Neath	0	5	6
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S. Seymour, Jevington, near Eastbourne ..	0	6	6
	£29	12	1
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Total	£43	14	5

NOTICE.—The readers of the "Working Man" are solicited to bring the following announcement under the notice of any of their friends whom they may think will be interested.

Metropolitan and Provincial

WORKING CLASSES' EXHIBITION and INDUSTRIAL FESTIVAL, to be held at the AGRICULTURAL HALL, London, and opened on SEPTEMBER 3rd, 1866.

TO EXHIBITORS.

Contributions of Skilled Workmanship, or Amateur Productions, will be accepted from all parts of London, the Provinces, Scotland, Ireland, and the Colonies. For the benefit of Provincial Exhibitors, the Railway Companies have liberally offered to return unsold goods free, so that the expense of carriage will be but half the usual charge. Application for space to be made at once.

SPECIAL PRIZES.

The Council of the above Exhibition have much pleasure in announcing that, in addition to the MEDAL OF MERIT, designed for the occasion by J. S. and A. B. WYON, Esqs., the following SPECIAL PRIZES have been liberally offered by the gentlemen named, for the production of Articles to be Exhibited at the Agricultural Hall in September next, namely—

£15 0 0 in Money, or Silver Cup, for the MOST USEFUL INVENTION. Open to all Classes. The Gift of the Directors of the Agricultural Hall Company.

£10 0 0 in Money, or Silver Cup, for the best PAINTING IN OIL The Gift of the Directors of the Agricultural Hall Company.

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£5 0 0 in Money, for the best WATER-COLOUR DRAWING. The Gift of J. HARRIS, Esq.

£3 3 0 for the best GOLD BROOCH and EAR-RINGS, of Original Design, which can be sold for £10. (Sale for that sum to be permitted if required.)

£2 2 0 for the best pattern, Birmingham make, GILT BRACELET, BROOCH, and EAR-RINGS, which can be sold for £3 3s. (Sale for that sum to be permitted if required.)

£2 2 0 for the best Specimen of WHITBY JET JEWELLERY.

£2 2 0 in Money, for the best WORKING MODEL of a STEAM-ENGINE. The Gift of W. J. W.

£2 10 0 for the best ARTICLE OF UTILITY, made by an Amateur. The Gift of R. MURRAY, Esq.

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£2 2 0 for the best Original Contrivance that may be suggested for improving the Fittings of WORKMEN'S DWELLINGS.

£2 2 0 for the best Specimen of SHEFFIELD CUTLERY. The Gift of T. RUDKIN, Esq.

£2 2 0 for the best Pair of LADY'S BOOTS. The entire work to be done by Exhibiter.

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In addition to the above, the

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☞ *Medals will also be awarded for other Articles which may be deemed worthy of especial distinction.*

All objects must be the work of the Exhibitor. In cases where Articles are the property of Employers, the name of the firm permitting their exhibition will be given in the Catalogue.

FORMS OF APPLICATION FOR SPACE may be obtained by sending a stamped and directed envelope to the Secretary, Mr. W. J. WATTS, 7, Birchmore Terrace, Cardington Street, Hampstead Road, London, N.W., or by application to any of the Honorary Agents. To be returned, filled up, on or before June 30.

Sixpence per dozen.

A Country Parson's Politics;

or, Franchise Extension *by* and not *for* the Working Classes, with a Word to JOHN BRIGHT, Esq., M.P. By the Rev. WILLIAM WIGHT, M.A. Cantab., late Vicar of Harbury. London: WILLIAM MACINTOSH, 24, Paternoster Row. Liverpool: THE "DAILY COURIER" OFFICE, 60, Castle Street. [4

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1000	43	85 2 0	30 1 8	3 5 3
600	27	38 12 0	10 2 0	0 16 9
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20	5 1	0 10 1	1 5 3	2 10 5
25	5 8	0 11 4	1 8 4	2 16 8
30	6 6	0 13 0	1 12 6	3 5 0
35	7 6	0 15 0	1 17 6	3 15 0
40	8 9	0 17 6	2 3 9	4 7 6
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THE PIANOFORTE MANUFACTURE.

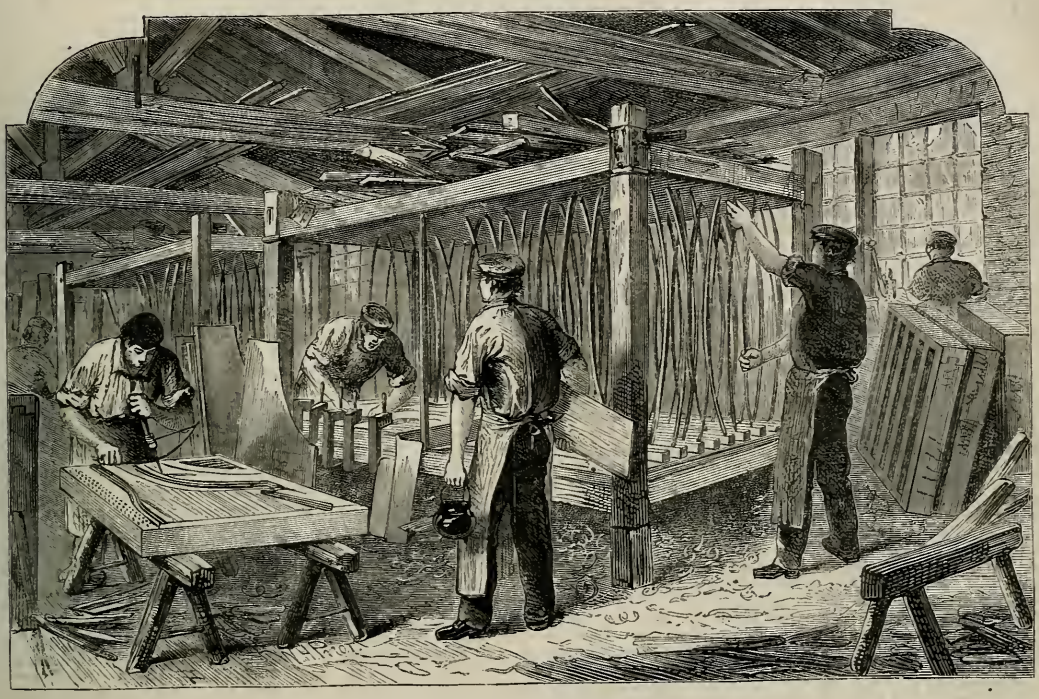

FIG. 1.—MAKING SOUNDING-BOARDS.

FIG. 2.—THE KEY-MAKER'S SHOP.

FIG. 3.—THE STRINGING-ROOM.

MR. C. CADBY'S
Gray's Inn Pianoforte Manufactory,
LIQUORPOND STREET, LONDON.

"Music for the Million!" is an announcement with which the public were made familiar some years ago, when a reviving taste for musical education rendered publishers and others anxious to supply the popular demand for the means by which it could be acquired. We have made rapid progress, as a nation, in musical culture even since that recent time. We have seen music introduced as one of the branches of instruction in our most elementary schools; glee-clubs and part-singing associations, largely composed of working men, established all over the country; and bands of efficient singers gathered together from the people, which have made possible such superb performances as those of our Handel Festivals, the Festivals of the Three Choirs, &c. Moreover, the taste for instrumental music has kept pace with the education of the voice—the one, indeed, naturally fostering and encouraging the other. So that we have come to look upon it as a matter of course that in almost every family one or more of its members should possess a musical instrument—it may be the humble flute or concertina, the more aspiring violin, or probably that best of instruments and universal favourite, the piano.

But "Pianos for the Million!" We should scarcely have expected to see such an announcement as this, and yet it is, in effect, that which meets our eye as often as we look through the advertising columns of the daily papers. So many improvements have been made in the manufacture of pianos during the last few years, so many methods have been found to cheapen the cost of production, and so large a demand for the instrument has arisen, enabling the manufacturer to sell at a small profit, that the price of a good piano is now little more than one-half what it would have cost twenty or thirty years ago, and the instrument itself is much better in quality. No wonder that the piano is finding its way even into the homes of our artisans, many of whom are rapidly becoming equal, in musical taste and culture, to those of France and Germany.

Having a desire to witness the processes by which pianofortes are manufactured, we recently visited one of the large metropolitan establishments—that of Mr. C. Cadby's, in Liquorpond Street. This establishment, we were informed, presented peculiar facilities for becoming acquainted with the subject, inasmuch as nearly every part of the manufacture is carried on in his extensive premises. From the rough wood to the perfect instrument, pianos can here be seen in every stage, and all the details by which the one is transformed into the other can therefore be witnessed by the observer.

By the favour of the proprietor we were afforded every opportunity to inspect the manufactory, and, taking the processes in order, were conducted, in the first instance, into the yard where the huge piles of timber of all kinds are stacked for future use. Ash, beech, pine, deal, rosewood, mahogany, walnut, &c.—all the woodwork for the body and more substantial parts of the piano—here lay in planks, pile above pile, but crosswise, so that every separate plank could become thoroughly exposed to the action of the atmosphere, and be thus properly seasoned before being made up. Usually the wood remains out in this fashion for two or three years, after which it is taken into a dry store-room close by. The more costly kinds of wood—mahogany, rosewood, walnut, &c.—used for the ornamental work, occupy the centre of this room; and some of this, as well as of the inferior kinds, is frequently kept in store as long as seven or eight years, that it may become so perfectly seasoned that the pianos manufactured from it shall be fitted for export to any climate.

Above the large timber store-room is another, used for veneers alone, where, in a small compass, more than 100,000 feet are kept. Some of these veneers of walnut and other valuable woods consist of slices so thin that twenty-eight go to the inch. In the general storekeeper's room near at hand is kept the beautiful fret-work used for the fronts of pianos. Each fret is formed of three separate veneers, so joined as to impart to the whole a strength far beyond what would be expected from its light and delicate appearance. Also dozens of beautiful carved truss legs and fronts, always ready, with all the action-works suitable for completing the piano; and from this room are the workmen supplied daily for each of their requirements.

We pass from the store-rooms to the machinery department, where the wood we have seen is cut up into the various forms adapted to the purposes required. Here we see solid blocks dealt with by those two powerful agents, steam and steel, as if they were so much cheese, and marvel at the ease and dexterity with which the processes of sawing, planing, &c., are performed. To produce the power required, a "donkey" is employed—not a quadruped, but an engine—to fill the boiler; also, a twenty-five horse-power engine, to keep in motion sawing, planing, turning, morticing, tenoning, moulding, drilling, and other machines.

The "back-making room" is the first in which the process of construction actually commences. Here the framework of the piano is put together, and the work must be of the most solid description, for the strain upon many parts of the piano when it is being played is enormous. It is said that the average strain of each string of a full-sized or grand instrument is about fifty-seven pounds. To resist this strain, five or six thicknesses of timber are used in the construction, the grain of each piece crossing that of the next, and the whole joined together with strong glue and immense pressure, in the manner of veneer. In this and other rooms the glue is made ready for use by steam-pipes, which obviate the danger and inconvenience of the use of fires.

In the "small workers' room," all the inside action of the piano is prepared. What is termed the action is, of course, the beautiful and ingenious mechanism by which the tones of the instrument are produced. Our readers who have seen the inside of a piano are aware that the wire strings are put in vibration by means of small hammers, connected by levers with the keys or finger-board. The hammer quits the string directly it is struck, and a "damper" falls down upon the wire, and stops its vibration, the moment the finger quits the key. The hammer shanks are formed of cedar-wood and covered with felt and leather, while that portion of the damper which falls upon the string consists of felt. The making of the "action" is a work of delicate nature, as the various parts require very careful adjustment. Mr. C. Cadby makes many of his pianos with the patent iron truss bracing, so much sought after for the foreign trade.

We now come to the key-makers' shop (Fig. 2), and notice with what care the thin white layers of ivory, which form the tops and fronts of the keys, are fixed upon their wooden foundations. The black keys are formed of ebony; and when the whole key-board is ready, its divisions are sawn through, as seen in our engraving, and it is then finally polished.

The preparation of the sounding-board is an operation requiring the greatest skill, as the thickness of the board itself diminishes by the finest possible gradations, according to the length of the strings to be attached. The room in which the sounding-boards are made ready is shown in Fig. i. In the centre of this shop the various portions are kept in racks to become thoroughly dry before use; and down the sides the processes of preparing are carried on. In the left of our illustration, a workman is seen drilling the holes in which the wrest pins for the strings are to be inserted.

The sounding-board finished in this way, it passes on to the "stringing-room" (Fig. 3). The wire for the strings is made ready in the workshop shown in Fig. 4, and is kept in coils of various sizes or thickness. The thinner strings are used for the higher notes; for the lower or bass notes the strings are coated with copper wire.

We have now seen the various portions of the piano made ready for fitting into the case, but have yet to witness an interesting department of the work by which the case itself is prepared. We allude to the making of the veneers which ornament the fronts of the instruments, and give them their handsome appearance. The thin slices of walnut and other woods which we saw in the store-room, have to undergo a deal of delicate manipulation before they are ready for use. The walnut, for instance, are anything but those perfect planks which the uninitiated might have expected to see. They are, in fact, cut from the excrescences of the tree, and are therefore full of holes and defects, which have to be filled in and rectified in the most ingenious and artistic manner. When the entire and complete surface is obtained, the veneer is ready for affixing to the case, and the piano then shortly becomes a finished instrument. As such it takes its place among its fellows in the spacious show-rooms of the house.

We have seen much to interest us in this establishment, but can only give the reader a sketch of its principal features. Mr. C. Cadby employs altogether about 150 hands, and has frequently on his premises as many as from 500 to 600 pianos in various stages. We are gratified to learn that he was awarded a first-class prize medal for the excellence of his instruments at the Great Exhibition of 1862.

It may be interesting to know that the first man ever employed at the formation of this business, is still to be seen on the premises. Many are there of eighteen and twenty years' standing—creditable to the workman as to the employer.

*Government Life Insurance.**

We proceed with the further development of the system of insurance which we have undertaken to recommend to our readers, for their adoption and benefit.

And, first, it will be both convenient and useful to summarise the several forms under which, by the Act 27 and 28 Vict., c. 43, the Postmaster-General is empowered to enter into present and prospective engagements with persons of either sex, between the ages of sixteen and sixty, relative to life insurance and the granting of annuities.

LIFE INSURANCE FOR AMOUNTS RANGING BETWEEN £20 AND £100, PAYABLE AT DEATH:—

1. By payment of a *single* premium.
2. By payment of an *annual* premium throughout life.
3. By payment of a premium once every *half-year, quarter, month,* or *fortnight,* throughout life.
4. By payment of an *annual* premium, ceasing at sixty years of age.
5. By payment of a premium once every *half-year, quarter, month,* or *fortnight,* ceasing at sixty years of age.

LIFE ANNUITIES OF NOT LESS THAN £1 AND NOT MORE THAN £50:—

1. By a *single* payment to purchase an *immediate* annuity payable half-yearly.
2. By a *single* payment to purchase a *deferred* annuity, payable half-yearly, and to commence at a given age.
3. By an *annual* payment, ceasing at a given age, to purchase a *deferred* annuity, payable half-yearly and commencing at that age.
4. By a *half-yearly, quarterly, monthly,* or *fortnightly* payment, ceasing at a given age, to purchase a *deferred monthly allowance* of not less than 4s. or more than £4 3s. 4d., to commence at that age.

For all these transactions there is the full security of the Government for the payment of the money directly it is due, and all the premiums are calculated upon a basis which secures this advantage at the cheapest rate consistent with safety to the national exchequer.

The following example will illustrate generally the various ways in which Life Insurance can be effected:—

The life of a man or woman in his or her thirtieth year may be insured for £100—	£	s.	d.
1. By a *single* payment of	43	3	7
2. By an *annual* payment, throughout life, of .	2	6	7
3. By a *quarterly* payment, throughout life, of	0	13	0
4. By a *monthly* payment, throughout life, of	0	4	4
5. By a *fortnightly* payment, throughout life, of	0	2	2
6. By an *annual* payment, until the insured person reaches the age of sixty, of . .	2	13	10
7. By a *quarterly* payment, until the insured person reaches the age of sixty, of . .	0	15	0
8. By a *monthly* payment, until the insured person reaches the age of sixty, of . .	0	5	0
9. By a *fortnightly* payment of . . .	0	2	6

The premiums, of course, vary according to the age of the person who wishes to insure his life, and smaller sums can be insured by proportionate payments. Thus, at the age of 30, a payment of 2s. a month throughout life will provide £46 1s. 10d. at death.

One most important feature of the Government Insurance system is that all sums insured are payable to the proper representatives *immediately on proof of the death, even though that should occur directly after the first premium has been paid.* In ordinary insurance offices it rarely happens

* Continued from page 252.

that the sum insured is paid much within six months after death, and great inconvenience and distress often result from this delay.

Again, if a person has been insured for five years, and either from ill health, want of work, or any other cause, he is unable or unwilling to continue his premiums, the Postmaster-General will return him a certain fixed proportion of the money he has paid, retaining only such a sum as will cover the risk which the office has borne whilst the insurance lasted.

Such important points as these distinguish the Government Insurance from all other; and, indeed, until Mr. Gladstone took the matter in hand, insurance for any sum below £100, or by more frequent payments of premium than every quarter, was almost entirely unrecognised. The premium to insure a given sum will necessarily be less in amount if paid once a year, than if it were paid by instalments twelve or twenty-four times in a year, because of the additional trouble and expense involved in the frequent collection of the money. Indeed, the most advantageous form of insurance, both to the office and to the person insuring, is that in which by one single premium a given sum is insured. Thus, if two men, both aged 24, effect an insurance for £100, the one by paying a single premium of £39 6s. 6d., and the other by paying an annual premium of £1 19s. 10d., the single premium would contain a provision for office expenses of 15s. 5d., whilst the same provision for each of the annual premiums would be 3s. 7d. So, if both persons lived to 60 years of age, he whose £100 was insured by the single premium, would have paid only 15s. 5d. towards office expenses, whilst the other would have paid no less than £6 9s. towards such expense.

Here, then, it is that the Post-office Savings Bank is so excellent an auxiliary to the Insurance Office, inasmuch as a person may, as often as he is able, deposit small sums in the Savings Bank until he feels quite certain that the money will not be wanted for immediate use; and he can then apply it to the insurance of his life by a single premium. The money is transferred from the Savings Bank to the Insurance Office books, and thus the trouble and risk of drawing cash out of one account and paying it into another is avoided.

The insurance by single premium especially commends itself to those who are uncertain of their future prospects, and are consequently debarred from engaging themselves to pay regular premiums at fixed intervals, but who would be willing to apply towards the insurance of their lives, from time to time, such sums as they may be able to save, or of which they may become possessed. And it should be noted that persons who commence by insuring for a small sum may increase their insurance whenever they are in a position to do so, until the aggregate amount reaches £100. Moreover, in the case of a married couple, both husband and wife may each be insured for £100.

The following tables show the different rates of premium charged under the various applications of life insurance, and we are in a position to state that those rates are lower than are charged by offices doing the largest amount of business amongst the provident working men.

TABLE 1.

Age next Birthday.	Sums which may be Insured by the Payment of the Undermentioned Single Premiums.														
	£20			£30			£40			£50			£100		
	Single Premiums.														
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
17	7	2	8	10	13	0	14	3	4	17	11	8	35	3	5
18	7	5	3	10	16	10	14	8	5	17	18	0	35	16	1
19	7	7	8	11	0	6	14	13	4	18	4	2	36	8	4
20	7	10	1	11	4	1	14	18	1	18	10	1	37	0	2
21	7	12	4	11	7	5	15	2	7	18	15	9	37	11	5
22	7	14	7	11	10	11	15	7	2	19	1	5	38	2	11
23	7	16	11	11	14	5	15	11	10	19	7	3	38	14	7
24	7	19	4	11	18	0	15	16	7	19	13	3	39	6	6
25	8	1	9	12	1	7	16	1	6	19	19	4	39	18	8
26	8	4	3	12	5	4	16	6	5	20	5	6	40	11	1
27	8	6	9	12	9	2	16	11	6	20	11	11	41	3	9
28	8	9	4	12	13	0	16	16	8	20	18	4	41	16	9
29	8	12	0	12	17	0	17	2	0	21	5	0	42	10	0
30	8	14	9	13	1	1	17	7	5	21	11	10	43	3	7

Under the foregoing Table, a person may commence by insuring his life for £20, and may increase his insurance from time to time, either by smaller or larger sums, until his aggregate insurance amounts to £100. Thus, if at age seventeen he secures £20 by paying £7 2s. 8d., he can, at age twenty, insure for another £10, by paying £3 16s. 1d., and at age twenty-five for a further sum of £5, by a premium of £2 2s.; so that altogether he will have paid £13 0s. 9d. in premiums, and will have secured for his family £35, payable at his death.

TABLE 2.

Age next Birthday.	£100 at Death may be secured by paying the Annual Premiums as under.	By Paying £1 a Year the following Sums at Death may be secured.	By paying 2s. a Month the following sums at Death may be secured.
	Annual Premium.	Sums Insured.	Sums Insured.
	£ s. d.	£ s. d.	£ s. d.
17	1 13 6	59 15 6	64 6 0
18	1 14 5	58 3 5	62 11 2
19	1 15 4	56 13 5	60 18 8
20	1 16 2	55 5 7	59 8 5
21	1 17 1	53 19 9	58 0 6
22	1 18 0	52 14 3	56 12 10
23	1 18 11	51 9 1	55 5 7
24	1 19 10	50 4 2	53 18 7
25	2 0 10	48 19 6	52 11 10
26	2 1 11	47 15 1	51 5 4
27	2 3 0	46 10 11	49 19 1
28	2 4 1	45 6 11	48 13 1
29	2 5 4	44 3 2	47 7 4
30	2 6 7	42 19 7	46 1 10

The premiums for smaller sums can be easily computed from the above Table. Thus, at age twenty, the annual premium to secure £100 is £1 16s. 2d.; half that premium (18s. 1d.) would secure half the amount (£50), and so in like manner for other sums. The same rule holds good with the other two columns of the Table, and the principle of progressive insurance is applicable in each case.

TABLE 3.

Age next Birthday.	£100 at Death may be secured by paying Annual Premiums as under until the assured Person reaches the Age of 60 Years, if he live so long.	By paying 2s. a Month until the Age of 60, if the assured Person lives so long, the under-mentioned Sums at Death, whether before or after 60, may be secured.
	Annual Premium.	Sums Insured.
	£ s. d.	£ s. d.
17	1 16 1	59 14 5
18	1 17 3	57 17 11
19	1 18 4	56 3 7
20	1 19 6	54 11 4
21	2 0 7	53 1 2
22	2 1 10	51 11 2
23	2 3 0	50 1 6
24	2 4 4	48 12 1
25	2 5 8	47 2 11
26	2 7 2	45 13 10
27	2 8 8	44 5 0
28	2 10 4	42 16 3
29	2 12 0	41 7 8
30	2 13 10	39 19 4

By this arrangement the premiums are payable until the person insured attains sixty years of age, when they are discontinued—the sum insured being payable at his death; and if he should die before he is sixty, the sum insured will equally be paid at his death. This plan is advantageous to those whose earnings depend upon their power of work, which declines with advancing age, and thus renders them less able to keep up the payments of premium.

BIRMINGHAM purchases for manufacturing purposes 26,000 tons of copper per annum. She uses this quantity somewhat in the following manner:—say 7,000 tons for making yellow metal, 6,000 tons for making tubes of copper and brass, 4,000 tons for making wire, and about 3,000 tons for making brass and other metallic mixtures.

LIGHTING OF PUBLIC HALLS BY MAGNESIUM.—At the Royal Institution recently, Mr. Larkins exhibited his method of illuminating public halls by the combustion of magnesium. The magnesium, in a finely divided state, is showered on small flames of gas, and thus produces a brilliant illumination. It was the first time the apparatus had been publicly exhibited. The flame was flickering, but the pure quality of the light contrasted strongly with the usual gas flames of the burners in the lecture theatre.

"*Up in the Morning Early.*"

I REMEMBER hearing a song, the subject of which was a lover meeting his lass early in the morning, and pressing his suit till the eventful "Yes" was bashfully uttered. The singer had a good, clear, baritone voice, and right merrily trolled the burden of the verse—

> "Young maidens, they say,
> Will seldom say Nay,
> If asked in the morning early."

There is an influence in the balmy breath of the early day which appears to make the heart more susceptible of joyous, tender and innocent emotions. Two or three centuries ago, when life was less artificial than it is now, English girls used to be up betimes, and in the bright mornings of the young summer bathe their faces in the dew to freshen their complexions. They went to bed early, and had three hours of "beauty sleep," as the old folks call sleep before midnight, and early in the morning, when "up rose the sun and up rose Emily," as one of our old poets sings, they were as fresh-looking as the daisies and as cheerful as the birds twittering or in full-voiced song in the trees and bushes. Then the run over the dewy meadows, and the "mouthful of fresh air," which is the best tonic in the world, heightened the roses on their cheeks; and I cannot wonder if the lads who were up betimes too, and about their early work, stepped nimbly after their blooming sweethearts, and, pointing to the little spire of the village church, so clear and sharp against the golden sky, did not wait long for the dear "yes," which made them think that the early sunshine was a perpetual glory.

Ah, me! many of us have seen such a morning as that. With some it has been followed by a sunny noon, and evening shades closing sweetly on the scene; others have seen the sky clouded with storms, and drifting on to dark and dismal nights. But the memory of the old golden mornings lives still; and, as children are born every day to remind us what beauty and innocence there is in the essence of humanity, so, in each succeeding summer time, are early sunshine and the rejoicing of all created things.

These thoughts come into my head when I am going to work these fine summer mornings. My way lies through the streets of this mighty London. The shadows on the path are not those of tall elms or branching oaks; there are no wayside flowers. But the sun shines very brightly; the air is infinitely clearer than late risers will believe to be possible; and the sweet perfume of the hay is borne into the heart of the big town, though the fields where the mowers have been at work for the last hour or more lie miles away in Kent or Surrey. It was on just such a morning as this that, years ago, Nelly placed her hand in mine as we stood by the gate of a corn-field (I was a country apprentice then), and the sky of our future life seemed to be as flecked with golden hope as the blue vault above us was with the rays of the morning sun. On many such mornings as this—Sunday mornings—I have walked to a little "God's acre," miles away, where lies a faded blossom of our lives, gathered into the sheaf by the reaper Death.

Some places, perhaps, like the "fair Melrose" of Sir Walter Scott, are seen to best advantage by "the pale moonlight;" but London never looks so well as at four or five o'clock on a summer's morning. I don't go to work quite so early as that, but I am often out of bed and enjoying a walk. Sometimes I go to the early markets, where the market carts are discharging their loads of fresh vegetables from Brentford or Fulham, or the baskets of fruit from the Kentish orchards. Sometimes I stroll on to one of the bridges; and if any one wants to know how beautiful big London can look, he could scarcely choose a better spot for a good view. The river literally smiles in the sunshine streaking the ripples of the stream. It is difficult to believe in the murky stream of mid-day. The sails of the vessels seem bright and clear; no smoke hangs in the air; and the roofs of the houses glisten in the clear light. The outlines of the buildings are sharply defined, without that blur of indistinctness which the vapours of an hour or two hence will create. The hundred or more spires stand out against the sky, some white and new, others time-worn and dull in tint, but all combining to make up a beautiful and varied picture. Above all is the giant dome,

every rib and moulding visible, with the golden cross high in air, shining like a beacon.

There are not many people in the streets, but there are enough to give one a strange insight into the varied conditions of humanity to be met with in a great city. The cheerful features of the scene are the men hastening to work, stepping along with firm tread, stopping, perhaps, to enjoy a cup of coffee at the stall at the street-corner; the light carts hurrying with the morning's newspapers to the railway stations; fresh-faced, cosy-looking butchers, greengrocers, and fishmongers on their way to market; early postmen hurrying to sort and deliver the morning mails; a few holiday-makers, all agog with delight, and promising themselves unheard-of pleasures if they reach the early Parliamentary train in time. There are water-cress women, sad looking and weary, even at these small hours of the day, anxious to earn a breakfast for the little ones by a morning's toil. Some carry babies slung at their backs, and some have little ones dragging at their ragged skirts. There are flower-girls going to purchase moss-roses and geraniums, lilies of the valley and pansies, for bouquets. The night-cabman rouses himself on his box, or shakes himself out of the cab, where he has been enjoying a nap, and prepares to drive home to the stable; and the night-policeman casts his eyes up to the church-clock, and wishes the morning men would come on. The bakers, who have had a few short hours of rest, were up again two hours since, and we do not see their thin figures and white faces, for they are now busy drawing hot batches, and preparing the oven for the eight o'clock rolls.

From under archways and from off door-steps, from the pavement outside the huge buildings—paid for liberally to shelter the houseless poor, but barricaded like fortresses against the shivering wretches whom abject poverty has not quite deprived of decency, and who would prefer to perish in the streets to encountering the abomination and degradation of the casual ward—creep shivering wretches, old and young, ragged and dirty, cold and hungry, to prowl again in the streets of the great inhospitable London. They are not all good and persecuted. There are born thieves and vagabonds among them, ribald wenches who have crouched all night on park benches or in dark passages, and now sit down on the edge of the kerb and twist up their tangled hair, and interchange coarse jests and blatant profanity. There are skulking lads tramping into London after a round of the Essex or Hertfordshire union-houses, perhaps after a visit to sundry county gaols.

There are other scenes, not of regular, but occasional occurrence; such as the trooping of crowds to secure good places to see a wretch expiate his crime on the scaffold. Sometimes, too, a mob of yelling, foul-mouthed fellows, the scum of the back slums of the East and West Ends, meet at a railway station, and are joined by well-dressed men, who arrive in Hansom cabs, and are politely waited on by railway authorities, who are willing (wealthy and respectable though the great companies they represent are presumed to be) to furnish special trains for the accommodation of patrician and plebeian ruffians who delight, in defiance of the law, in seeing two brawny gladiators beat each other.

Such things, some pleasant and cheering, others painful and repulsive, may be witnessed by him who, wishing to see London at its best, gets "up in the morning early."

Anthracite Coal.—When the anthracite coal up the Schuylkill at Mount Carbon was first effectively discovered, no way of igniting it was known, and it was deemed of little value until an English chemist in 1810 erected a furnace, and with three strong bellows succeeded in bringing out such an intense white heat from the coal as to melt platina. It then came into general use

The Utility of Petitions.

Petitioning has fallen into disrepute of late years, partly through misapprehension of its uses, and partly through political disappointment. Petitioning is an ancient English right, and used to be highly valued. It has lost none of its value, though it has suffered in reputation. Years ago numerous petitions were presented to the House of Commons in favour of political reform. They were not much attended to, and were ordered "to lie upon the table," and were not much heard of afterwards. Naturally, though not wisely, a reaction grew up against petitioning; and now, when Parliament is more disposed than ever to attend to the wishes of the working classes, many questions are delayed, neglected, and suffer, in Parliamentary opinion, from not being supported by petitions.

There are two kinds of Bills commonly brought into the Houses of Parliament—public Bills and private Bills. Public Bills relate to the whole community; private Bills are such as enable individuals, public companies, or corporations to do certain things which affect only a portion of the public, a particular town or place. Petitions are differently treated, accordingly as they relate to public Bills or private Bills. Those affecting public Bills are presented publicly by a member, in his place in Parliament; and he may state the object of a petition; who signs it; explain whether it is influentially or numerously signed; may read its prayer or principal allegations: but a petition relating to a private Bill requires to be brought under the notice of the committee whose business it is to consider the private Bill, and this is done through the agents opposing the Bill, and the petition does not come before Parliament except in some report of the proceedings of the committee of the Bill. When the Victoria Park people lately petitioned against the threatened gas-works in their quarter, they were disappointed that their petition did not, like other petitions, come before Parliament. We have now stated the reason why. But it was in the power of the petitioners to have given their petition a public form, and have asked for protection against gas companies in the name of the general public, or as part of the general public, who might suffer in any or all places, by any inconsiderate introduction of gas-works, and solicited the general attention of Parliament to the general interests of the public. A petition so worded would become a public petition, and be publicly received.

When a stranger hears petitions presented with rapidity, and sees them crammed into the Clerk's bag, he finds that they do not even "lie upon the table" many minutes, but are bagged and carried away into unknown regions at once. This gives the impression that petitions are so much trouble wasted; but this is not quite so. There is a committee who have charge of all petitions, and a careful record is made of every petition, its object, whence and from whom it comes, and, in many cases, a careful abstract of it is made by some one, and all these facts are printed and sent round to every member's residence, that he may be kept acquainted with the demands, wishes, claims, or complaints of the public, on whose behalf and in whose name he legislates. When petitions relate to new Bills before the House, the chief petitions on both sides—that is, for and against measures in question—are printed and sent round to members in the same way; and when the Bills come on for debate, these petitions are consulted by members, who learn from them (if the petitions are well drawn and argumentatively expressed) more of the merits or demerits of proposed Acts of Parliament than can be elsewhere obtained. In these petitions private individuals can speak, and reasons which the proposers of Bills do not know, or often conceal if they do know, are thus brought under the notice of all the members who choose to look for them. There is, therefore, great utility in petitioning. Moreover, members who never read the petitions, count them. They ask, Are there any petitions about such and such a Bill? Does any one ask for it, or protest against it? and they judge in this way whether there is any, or what amount of public feeling upon any given question. To working men especially the right of petition is of no mean importance.

Petitions are the only modes open to the common people for being heard individually. The humblest person in the realm can thus bring his views before the highest assembly in the nation, and can be heard there. Any man or woman may petition the House of Commons or Lords. Whoever suffers grievance or wrong, or wishes to see a certain policy prevail, can thus become his own member of Parliament, and represent himself, and can state his own case, in his own way, and in his own words. For instance, there was a remarkable petition presented the other day by Mr. Alderman Cowen, the member for Newcastle-upon-Tyne, from some working men's political union in the town of Newcastle-upon-Tyne, which stated that they felt that exclusion from the franchise was a personal degradation. They neither based their petition for Reform upon rights of man, nor rights of property, nor rights of intelligence, but upon the manlier ground of self-respect. They stated that they felt exclusion to be a personal humiliation, and that they wished for enfranchisement as a means of discharging their public and political duty. Of all the petitions presented to Parliament, and they have been legion of late, this was the only one which took this remarkable ground. It is thus that petitioning is a personal privilege and a useful opportunity, valuable to working men, and one which they would be able to turn to a very useful and advantageous account if they understood it, for there are more conscientious members in the House of Commons than formerly, who do give attention to the allegations of petitioners and memorialists.

CIRCULAR DESIGN.

The Artist Workman.

CIRCULAR DESIGN.

In the illustration given by us this week, the details of the ornament are well proportioned, and form a harmonious whole. The grouping of the parts is very effectively arranged, and might be studied with advantage by our artist workman. It will be seen that the design is simply a series of repetitions of a portion of the whole. This is called "point" design, and more commonly practised than any other.

PIANOFORTE MAKING.—FIG. 4. THE WIRE-WORKERS. (*See page* 370.)

*Lessons in Mechanics.**

In the preceding lessons I have shown how work done by men or animals may be measured and compared with other kinds of work; and I have also distinguished between the work of which an agent is capable, and the work actually done by that agent, which is called "useful work."

In fact, "to do work" is "to overcome or destroy resistance," and the resistances overcome or destroyed arise from the adhesion of the molecules of bodies, the force of springs, the force of gravity, the inertia of matter, and a thousand such other causes. Thus, to polish a surface by friction, to break stones, to lift weights, to throw stones, &c., is to overcome, during a certain time, resistances incessantly renewed during that time.

Mechanical work does not imply merely a resistance overcome, once for all, or equilibrated by a motor force, but it implies *a resistance constantly destroyed along the path described by the point of application, and exerted in the direction itself of that path.*

Thus, to lift with a shovel a portion of clay from the ground, we must not only make an effort in a *vertical* direction equal to the weight of the clay, but we must cause this weight or resistance to move in the vertical direction; and the work actually done is proportional to the height through which the weight is lifted; if the height be double, the work is double, and so on. In like manner, the work is double if the weight be double, and so on; and thus the total work done is measured by the product of the weight and height; for as it varies proportionally as each of these quantities, it will vary as their joint product.

If, instead of lifting a weight, a man or horse draw a load along a horizontal road, the work done in this case is measured on precisely the same principles. We are to find the pull on the traces and the length of the road, and the joint product of both will give the work done, for the resistance overcome or work done is proportional directly to the pull on the traces, and also to the length of the road, and, therefore, the total work varies as the product of both.

In both these cases the useful work is expressed properly by an equivalent weight multiplied by the height to which it is supposed to be lifted, although in the horizontal transport of weights engineers are too frequently content with stating the actual weight transported a given distance horizontally. I have already fully shown that this may be converted into weight actually lifted by dividing it by 25, which represents for men and horses, on a level road, the proportion of weight to traction.

The work done in any description of labour ought always to be converted into a weight lifted through a height, which is the natural measure of work. When a millwright says that a pair of stones will grind so much corn per hour, he does not speak so as to be intelligible even to other millwrights, unless he specify the description of corn, and its condition at the time of grinding, as to moisture, &c. When a Cornish engineer tells us that the stamping machinery at Polberro stamped 30,201 tons of tin ore in the year 1854, we cannot form an opinion as to the amount of work actually done without knowing the hardness and tenacity and other qualities of the ore acted upon. On the other hand, when he informs us that the machinery consists of 72 stampers, weighing each 600 lb., which are lifted 9 inches, and make on an average 45 blows per minute, then we can easily calculate the amount of work applied, and ascertain how much is necessary for the crushing and stamping of the tin ore employed:—

$$\text{The work done per minute} = \frac{72 \times 600 \times \frac{3}{4} \times 45}{2240} = 651 \text{ ft.-tons.}$$

This is equal to the daily work of two strong men, and is expended during each minute that the stamps are in action.

The work done is also equal to 1458000 ft.-lb., which may be converted into horse-power (steam), by dividing by 33000, the number of ft.-lb. of work done by Watt's steam-horse in one minute:—

$$\text{Work of stamps at Polberro } \frac{1458000}{33000} = 44 \text{ horse-power.}$$

The engine that did this work was a 36-inch cylinder engine, working at 55 horse-power; and the useful work done was, as I have shown, 44 horse-power; from which we may infer that one-fifth of the work applied was destroyed by the friction of the machinery necessarily used.

The following amounts of tin ore were crushed by this engine:—

In 1854	. . .	30,201 tons.
1855	. . .	29,663 ,,
1856	. . .	31,411 ,,
Mean	. .	30,425 tons per annum.
		585 tons per week.

Allowing six working days per week, this result is very nearly 100 tons per day, stamped by 72 stampers, or exactly 1·354 tons per day to each stamp. At Great Hewas mine the ore is so different in texture and toughness, that 3 tons per day can readily be crushed by a similar stamp-head.

It is evident from the preceding examples that it is unscientific, although sometimes convenient, to express work done in units of bushels of barley ground, tons of tin-stuff stamped, &c., or, in fact, in any other units of work than those suggested to us naturally by the force of gravity, which draws every substance and being on the surface of the globe towards the great mother earth, with a constant, gentle, and easily-measured force.

Every description of work done, or resistance overcome, may be ultimately reduced to a certain weight lifted through a certain height, and the product of that weight by that height is the only accurate or admissible measure of the amount of work expended.

For example: in order to show the complication really inherent in several industrial occupations, I shall use the case of the iron-filer, who must—1, exert a certain pressure to make the file bite; 2, make the file slide along the body filed, by the exertion of a certain force, acting with a certain velocity; 3, bring back the file to its former place, with a certain velocity, and so overcome the inertia of the file. The quantity of work actually done by the workman is the sum of the three foregoing works, of which the first and third are only fatigue work, and the second only is useful work. If it were our object to calculate, for physiological purposes, the whole work done by the labourer, we should be obliged to estimate Nos. 1 and 3, as well as No. 2; but if we only want to know the useful work done, we can calculate No. 2, by supposing that the workman was only obliged to push his file, loaded with a weight sufficient to make it bite, with a uniform movement continued in the same direction along a straight bar of metal placed horizontally. The amount of the horizontal push or thrust of the labourer may be expressed as a weight in pounds or tons, and this weight, multiplied by the total length of the path described by the biting file per day, will give the daily useful work employed in that description of labour.

The term "work" is now universally used in the sense of the joint product of the force applied to overcome a resistance, and the path described in the direction of the force. It corresponds to

* Continued from page 325.

other phrases used by older writers. Thus, Mr. Smeaton has called it "mechanical power," in his treatises on hydraulic wheels; M. Carnot calls it "moment of activity;" MM. Monge and Hachette name it "dynamical effect;" Messrs. Coulomb, Navier, and others speak of it as "quantity of action." The expression "work" (*travail mécanique*) was first introduced by Poncelet, to whose genius and writings the science of applied mechanics is so much indebted; and it has been adopted by mechanicians of all countries, as the most suitable term to express the stored-up or expended result of the application of a force for a certain time to overcome a resistance.

A MAN'S A MAN FOR A' THAT.

(*A New Version.*)

BY CHARLES MACKAY.

"A man's a man," says Robert Burns,
"For a' that and a' that;"
But though the song be clear and strong,
It lacks a note for a' that.
The lout who'd shirk his daily work,
Yet claim the wage and a' that,
Or beg, when he might earn, his bread,
Is *not* a man for a' that.

If all who dine on homely fare
Were true and brave, and a' that,
And none whose garb is "hodden grey"
Was fool or knave, and a' that,
The vice and crime that shame our time
Would fade and fail, and a' that,
And ploughmen be as good as kings,
And churls as earls for a' that.

You see yon brawny, blustering sot,
Who swaggers, swears, and a' that,
And thinks, because his strong right arm
Might fell an ox and a' that,
That he's as noble, man for man,
As duke or lord, and a' that;
He's but a brute, beyond dispute,
And *not* a man for a' that.

A man may own a large estate,
Have palace, park, and a' that,
And not for birth, but honest worth,
Be thrice a man for a' that;
And Donald, herding on the muir,
Who beats his wife, and a' that,
Be nothing but a rascal boor,
Nor half a man for a' that.

It comes to this, dear Robert Burns—
The truth is old, and a' that—
"The rank *is* but the guinea stamp,
The man's the gold for a' that."
And though you'd put the minted mark
On copper, brass, and a' that,
The lie is gross, the cheat is plain,
And will not pass for a' that.

For a' that and a' that,
'Tis soul and heart, and a' that,
That makes the king a gentleman,
And not his crown and a' that.
And man with man, if rich or poor,
The best he is, for a' that,
Who stands erect, in self-respect,
Who acts the man for a' that.

—*Blackwood's Magazine.*

DISTILLATION OF PLANTS.

Distillation, which is applied to plants, seeds, barks, woods, and a few flowers, consists in placing the substance from which the scent is to be extracted in a copper vessel called a still, with enough water to cover it. Heat is applied, and the steam generated, which is impregnated with the fragrant molecules, passes through the head of the still into the worm (a coiled pipe placed in a tube, where it becomes condensed by means of the surrounding water, which is constantly kept cool), issues in liquid form at the tap, and flows into the recipient. If sufficiently loaded with aroma, it then separates into two parts, the most concentrated of which, called the essential oil, collects either on the surface or at the bottom, according to its specific gravity. It is then decanted, and the water used again for distilling, unless it is of sufficient value in itself to be saved, as is the case with rose and orange-flower water. The recipient you see here is called a Florentine recipient, from its having been first used at Florence, where flower distilleries still exist. It is constructed in such a way as to allow the water to escape whilst retaining the essential oil. A great improvement has been lately effected in distillation, which consists in suspending the fragrant substance on a sieve in the still, and causing a jet of steam to pass through. This operation produces a finer essential oil than by allowing the substances to be steeped in water, as it only carries off the most delicate part of the aroma without dissolving the bitter principles frequently residing in the basis.

The fragrant principles of all aromatic plants may be extracted by distillation, in the shape of essential oil; in fact, it exists ready-formed in many of them, contained in minute vesicles, as you may see by bruising a thyme or rosemary leaf with the hand. Such is not the case with flowers; the aroma they possess, with a very few exceptions, is so fugitive that it would become destroyed in the process. In that case, maceration or absorption is resorted to. Maceration consists in steeping flowers in a bath of hot grease, letting them infuse for some time, and renewing them until the grease is completely saturated. This grease, which is called *pommade*, is then submitted to strong pressure in horse-hair bags. Oil is also perfumed in the same way, but requires less heat. This process is applied to rose, violet, cassie, jonquil, and orange flowers; but for more delicate flowers, such as jasmine and tuberose, the absorption or *enfleurage* system is employed. Purified grease is spread in a thin layer on a pane of glass mounted in a wooden frame or sash, called *châssis;* fresh flowers are strewed over this grease, and renewed every morning; and at the end of two or three weeks this grease or pommade acquires the scent of the flower in a high degree. Perfumed oil is made in the same way by substituting a wire bottom to the frame, and spreading on it a thick cotton cloth, steeped in the finest olive oil, which is pressed out of it after complete saturation. These frames are piled on each other to keep them hermetic.—*Eugene Rimmel on "The Commercial Uses of Flowers and Plants."*

AMONG THE SWISS CANTONS.

Mr. Joseph Fisher, in his recently-published work, "Where shall we get Meat?" thus describes Berne, one of the more celebrated of the Swiss Cantons:—

"Berne presents an aspect different from the other cantons; the buildings are much more massive. This arises from the fact that horses, cows, sheep, and pigs are all domiciled in the same house as the owner. They are usually edifices of three or four storeys high; one end is the residence of the family, at the other the horses, cattle, &c., are lodged on the ground floor, over which the hay, the corn, and the straw are kept. There are no haggards, no stacks of corn, no ricks of hay. Not a bit of litter is to be seen. The greatest care is taken of the dung and liquid manure. The former, when brought out from the stables, is piled up in a square heap. The straw at the ends is nicely turned in, and it is thus raised like a wall. It becomes perfectly decomposed, is never exposed to the atmosphere, and cuts down like a cheese. The liquid manure is all saved, and applied to the land in its due rotation. The farming is generally skilfully conducted, but an English eye is rather annoyed with the constant appearance of a plant like the dandelion, which the Swiss encourage, as they think it helps to increase the quantity of milk. The northern part of this canton is much less populous, and the farms are larger; the tillage has a less careful aspect. The good land of Berne forms a larger portion of its area than in Switzerland. It is thus classified:—

	Switzerland.	Berne.
Biens-fonds	7,640,350	1,253,000
Forests	1,980,000	292,000
Good lands	5,660,300	961,000

"Arable land is hardly a proper term, as there is included under the term 'good land' all the 'green Alps' or mountain pastures which cannot be tilled. It is easy to understand the reason of the Swiss for classing the forests among the *biens-fonds*, as it is from the former they derive their fuel. Except at the railway stations, coals are not seen, but wood is found everywhere. It is delivered in billets of about three feet long and about six inches square, which are to be seen in long piles outside the farmhouses; it is also thrown down from the carts outside the doors of the houses in the towns, where women and lads employ themselves in cutting it into lengths of about nine inches; these pieces are again split into billets of one and a-half to two inches square, in which shape they are removed into the store for use. Timber enters largely into the construction of the houses, but in the absence of slates they are almost universally covered with tiles. The projecting roofs, which sometimes run down to near the ground, afford shelter in winter and shade in summer. Some of the English residents have built houses after the style of their own country, but they look sadly out of place. Berne does not display the same activity as some other cantons, but is in a prosperous condition. Cattle are used for ploughing and carting; the vehicles are usually four-wheeled, and fitted with a break to prevent the too rapid descent of the hills."

Basle affords matter for a few notes:—"Basle is the best ventilated city I have visited in Switzerland; most of the others, though clean and well swept, are very unsavoury. Either the drains are defective, or they require flushing, for in some places, particularly Lucerne, the olfactory nerves were assailed in an unpleasant manner; even Berne, through the streets of which fresh water is always flowing, is not as sweet as could be desired for the health of the residents, or for the noses of the visitors. I went to the market at Basle; it was well supplied with a great variety of vegetables and fruits, but it did not present the active scene which I saw at Lyons. There was a large supply of cattle at market, and also of calves. The Swiss prefer veal to mutton, and more attention is paid to calves than to sheep. I noticed in Switzerland that which I did not see in France—a considerable cattle traffic on the railways. The calves, pigs, and some of the cows, were brought to market at Basle in low wagons, drawn by horses, and covered with canvas. The poultry were very nicely arranged; instead of being tied together by the legs, and put on a cart or into boxes, they were placed in round baskets, to the sides of which a net is attached, which was about two feet high, and closed with a running string like a bag; thus any of them could be taken out at a moment. The bridge at Basle consists of timber flooring; half of the length is supported by stone piers, the other half by timber piles. On ascending from it to the Munster Plaz, in which the cathedral stands, I was quite surprised to see the number of tall chimneys, each giving signs of fire below. I learned that Basle possesses many manufactories, and is particularly famous for her ribbons. Her manufacturers purchase raw silk in London, and send back their ribbons for sale there, thus beating the English manufacturers, though loaded with a double carriage. In 1846, the silk manufactures of Basle were estimated at 20,000,000 francs annually. The total value of the silk manufactures of Switzerland are about 35,000,000 francs. The Swiss have to compete with the French in this branch of manufactures. The superior education of the Swiss operatives gives them every chance of perfecting themselves afterwards. 'While the French workman,' writes Mr. Burnley, 'is lighter and nimbler, conceives and executes new things quicker, the Swiss is slower and heavier, but the more solid, steady, and reliable. The Swiss manufacturer has the advantage of a larger capital, and greater skill and practice in mercantile business.' The aptitude and energy of the Swiss for manufacturing is astonishing. We have long been familiar with the delicacy of the Geneva watches, which are mostly made by the peasantry of a particular district during the winter. But in textile fabrics the Swiss are beating both the English and the Belgians, each of which countries has, what Switzerland has not, a seaboard and large supplies of coal. The English and Belgians can receive the raw fibre, and export the manufactured article, at much less cost for carriage than the Swiss, who have no seaboard, and must receive their supplies either through Italy from Genoa, or through France. I understand the Swiss manufacturers content themselves with second-hand machinery, taken out of English mills to make room for more improved machines—that is, implements which will either do more work or do it better. These facts present a curious problem to political economists. Here is a country without coals, without seaports, and using inferior machines, beating two countries which possess all these advantages. Let us look at the cause, because nothing happens without one. What have the Swiss to compensate for these disadvantages? They have food grown by themselves, and they have water-power. As to food, England has to pay a large sum for it. This sum is partly the cost of the corn, partly the cost of carriage. The actual cost of wheat upon grounds of equal fertility is the same all over the world; it is only the seed and labour. If it be removed from Russia or America to England, then England must pay the carriage, and all the commissions or profits incident to collecting it from the farmers, in addition to the cost. Corn consumed where it is raised is, therefore, cheaper than it can be when imported. Switzerland has an almost unlimited supply of water-power. I think the river Aar alone would drive all the mills of Lancashire. It falls nearly 1,500 feet between Brienz and the sea, and the volume of water which pours along is surprising."

*The Foresters.**

GENERAL VIEW OF FORESTRY AND ITS WORKING.

We believe that it would be difficult to find in any other institution a wiser plan of government than is made manifest in the Order of Foresters. On the present occasion we must confine ourselves to the salient points of their regulations, but they will be amply sufficient to bear out the above opinion, and, we trust, to attract the attention of those whose special interest it is to support such an institution.

The first qualification for admission into the Order of Foresters is good health. Were it otherwise, the institution might become a mere hospital. No person is therefore admitted—excepting as an honorary member—who is in ill health. So much for the physical condition of the members; but morality is also required. No one is admitted—whether as an honorary or financial member—who bears a bad character,

* Continued from page 340.

who leads a dissolute life, frequents bad company, is guilty of habitual intoxication, or is of a quarrelsome behaviour. Any member knowingly proposing a candidate in opposition to this law is expelled the Order, or suffers such other punishment as the Court in which such misdemeanour occurs shall think proper. Should any member be convicted by a jury or by a magistrate of felony, larceny, or embezzlement, or by a committee of his Court of any crime or offence calculated to bring disgrace upon the Order, he is expelled, and his name is circulated in the quarterly report of the Executive Council. But such expulsion is not inserted until the time has expired for appealing to the Court next in superiority to that by which he is expelled. Of course, should the member ultimately succeed in establishing his innocence in any of the cases, after conviction, the law of expulsion and its consequences do not apply.

Nor is that all. The society wisely holds forth to her members the great boon of securing forgiveness and restoration by wooing the angel of repentance. Should any convicted member, on the expiration of the term of his imprisonment, show by his future good conduct, for the space of twelve months, a sincere repentance for his offence, and lead a sober, honest, virtuous life, he may, on application of the Court to which he formerly belonged, and with the consent of the Districts, be eligible for *re-admission*. It is only on being found guilty of a second offence that he is for ever expelled from the Order.

No person is admitted as a financial member who is under the age of eighteen years, or whose age exceeds forty years. With the Odd Fellows, the limit of age is thirty-six; but the Districts have discretionary power to admit persons above thirty-six years of age, upon payment of £1, and the contribution of the lodge for each lodge-night that has elapsed since the person admitted was thirty-six years of age up to the date of initiation, together with the additional payment, at the rate of 7s. 6d. per annum, in addition to the usual contributions during membership. We know not why a similar arrangement is not adopted by the Foresters, as it seems desirable to exclude no one from the benefits of such an institution. On the other hand, however, it must be in the power of very few working men to pay up such arrears.

The charges for initiation among the Foresters are as follows:—

	s.	d.
18 and not exceeding 25 years	5	0
25 „ „ 30 „	7	0
30 „ „ 35 „	10	0
35 „ „ 40 „	12	0

The regular contribution of members is 1s. 6d. or 1s. 7d. per month.

Any respectable person may become an honorary member, if of the age of twenty-one years, by paying 10s. 6d.; but he has no claim on the funds of the Court or Order, nor can he fill any office in the institution, excepting that of treasurer or trustee to a subordinate Court. Nevertheless, he has the privilege of expressing his opinions upon all questions brought before his Court, but he is not allowed to vote.

The Funeral Fund is provided in large Districts as follows:—To a District Meeting each Court sends a delegate, and the number of deaths that has occurred is taken into consideration. The number of members of each Court being returned by its officers to the District Meeting, a levy is laid in proportion, to be paid by each member, to cover the sum required for the purpose—hence the perfect ability to meet all demands on all occasions, or, in other words, the solvency of the Order. In the London United District of Foresters the fund is raised by the fixed contribution of 1s. from each member *per quarter*.

Every member contributing 1s. 6d. or 1s. 7d. to the various Sick and Funeral Funds, becomes thereby entitled to 10s. per week sick-pay for the first twelve months, after which he is reduced to half-pay. The funeral allowance is £10 for a member, and £5 for a member's wife.

Ample provision is made against the event of the breaking up of a Court or branch of the Order. In such a contingency, members, if not too old, are transferred into other Courts, without losing their benefits; and in the event of refusal consequent on advanced age, they are still provided for, by being placed on what is called the "High Court Fund"—to which every Court in the Order contributes its portion—to preserve, for this special purpose, a provision for the aged; and in the event of these High Court members falling sick or dying, the claims are paid by the High Court in the neighbourhood of such recipients. Isolation, or the standing alone, is the great drawback to those societies which have been so justly denounced. They have no branches, nor are they connected with any kindred societies whereby they could profit by example, or learn new methods of transacting their business, from the practical experience of others in different localities. They stand alone, or rather they are alone, and therefore cannot stand, besides being, by that very fact, open to much abuse in the management. True, the right-thinking men amongst them see things going wrong; but, being in a minority, they are unable to stay the progress of any wrong-doing; and if they persevere in their attempts at a reformation, every effort is made to remove the "disaffected" or "dissatisfied" member from the society, which is pretty generally effected.

Still worse happens in other cases, where if a member, through infirmity, has become burthensome, trumpery charges are brought against him, in order to frame excuses for the non-payment of sick-money, or for his expulsion. In either of these instances, the aggrieved member has seldom any remedy.

Not so with the Foresters. Here, if a member has not had justice done him, he has the power of appealing to what is called the "DISTRICT"—that is, a combination of Courts for the more effectual management of the business of the Order.

In order that the wishes and interests of every member of the Order may be duly represented, every financial Forester is entitled to vote in his own Court in the election of deputies to the High Court and District Meeting, as well as in the election of all its officers, and on other questions before the Court, excepting on the night of his initiation, or the night of throwing in his clearance, except such member is initiated on the opening of a new Court.

Every brother who has served in a subordinate office six months, and who is financial in his Court at the time of becoming a candidate, is eligible to occupy any office of honour in the Order—namely, the Chief Ranger of a Court, the officer of a District, or the Executive Council, with the same exceptions as before stated.

In order to preserve purity of election, and to prevent any improper influence or bias to induce a brother to give an unconscientious vote, it is determined that in the election of all officers of subordinate Courts, the vote shall be shielded by ballot, as likewise upon all other questions to be decided by vote, *if it be demanded by a brother*; but this is almost unknown, questions being decided by open vote. But open votes are always taken when the body consists of *deputed* members.

Here, indeed, is matter for meditation. A body of no less than *three hundred and one thousand men*, of what may be termed the *élite* of the working classes, united under one head, all actuated by the same principles of fraternal love, all endeavouring to outstrip each other in ameliorating the condition of their fellow-men, each having a voice in the introduction of some new feature, calculated to advance their social progress. It is, indeed, a grand example to set by so large a body of our fellow-countrymen. No greater bulwark could be imagined for the nation's peace and internal quietude than the fact that this large proportion of her male population is united for the universal dissemination of *unity, benevolence*, and *concord* amongst each other.

A striking instance occurred during the pressure of the Lancashire distress. At the High Court held at Portsmouth, £500 was voted to the Lancashire Relief Fund, for the aid of the Foresters suffering from the calamity; and subscriptions for the same purpose were made throughout the Order to the large amount of £3,000—all contributed by working men.

The solution of such a mighty problem is, indeed, a great fact in the modern advance of society. It proves what will result from unity of spirit and action, when adequately promoted by right appeals to the true self-interest of mankind. Such a society is a new apostolate for the elevation of the social state, to secure social well-being, to ensure peace and prosperity throughout the length and breadth of the land.

Facts and Memoranda.

THE COLONY OF VICTORIA.—In the year 1865, 30,976 persons arrived in the colony, and 25,292 persons quitted it; 25,811 children were born, and 10,466 persons died. The population increased 21,029 in the year, and at its close was estimated by the Registrar-General at 626,530.

UTILISING MARSHY LANDS.—Dr. Sacé has proposed a plan of utilising the marshes of France, which at present produce nothing but fever and ague. M. Sacé proposes sowing them with Canada rice, and turning down a lot of beavers; both the plant and the animal can live in any climate; both would be equally useful, and one would support the other. At present large sums are annually sent from France to America to purchase beaver-skins, which might thus become articles of home production.

WASTE OF COAL.—With regard to the total waste of coal in all the collieries of Great Britain by the destructive practice of burning at the pit's mouth great heaps of small coal and dust, it is not possible to present any precise or trustworthy information. There is too much reason for apprehension that it greatly exceeds what the public may suppose, or what the workers of collieries would be willing to admit. One illustration, on undeniable authority, shall suffice. The late Mr. Nicholas Wood asserted that, in 1861, the waste at the Hetton and Black Boy Collieries alone amounted to 160,000 tons of small coal in the year!—*Quarterly Review.*

NOVA SCOTIA MINES.—The Chief Commissioner of Mines has presented his report for the financial year ending the 30th of September, 1865. Royalty was paid in the year, upon 24,867 oz. of gold, an increase of 6,123 oz. over the previous year. About 700 miners were at work throughout the year upon an average; and calculating the gold at only 18 dol. 50c. per ounce, which is below its market value, the average yield per man was about 2 dols. 10c. per working day. The result of the coal mining of the year was also very satisfactory. The total quantity of round and slack coal sold from the mines amounted to 652,854 tons, an increase of 30 per cent. over the previous year. 59,536 tons were used for home consumption, 52,561 tons were exported to neighbouring colonies, and 540,757 tons to other countries, principally the United States. There are now thirty collieries at work in Nova Scotia. The iron mines are comparatively unimportant as yet, but about 1,500 tons of bar iron were shipped to England.

BRILLIANT MARBLED PAPERS.—In the factories where albumenised photographic paper is made a considerable quantity of paper is spoiled in the process, and it is then of but very little use. In Paris and Berlin this paper has always been washed as free as possible from the albumen, and then worked up into envelopes. Dr. Jacobson has found a new use for this paper; he proposes to stain it with aniline colours, and to employ it for labels, covers of boxes, and general decorative purposes. By being splashed with concentrated alcoholic solutions of the various aniline colours, the waste of these coloured papers, according to the *Reader*, is now converted into marbled paper, of a much more beautiful appearance than what is produced by the old process, from the green-gold lustre which the films of these substances possess. The papers obtained by this method retain the gloss, the bright "satin" surface of the albumenised material, and are almost as brilliant by transmitted as by reflected light. They are said to be well adapted for shades, transparencies, paper lamps, and other means of decorative illumination.

THE BUSINESS OF THE PATENT OFFICE.—A mistaken idea appears to be held by some people, who have, probably, little to do with novelties in engineering science, that the specifications are published shortly after the patent is completed; but they are only in so far published as the original documents are accessible at the Patent Office itself, and then only after paying a shilling for each patent specification it is wished to examine. We presume, therefore, that most readers will thus content themselves with the patent journals. The blue books are, in fact, some five months in arrear; but, as the Attorney-General has stated in the House, additional aid has been procured, which will probably bring up the arrears within a reasonable time. Of scarcely less value than the specifications themselves are the abstracts of the abridgments. The second parts of most of the older volumes are being prepared, amongst which is the long-delayed class for the manufacture of iron and steel. The fresh and additional classes being prepared are:—Preparation and combustion of fuel; steam engines; spinning; lace and other looped and netted fabrics; railways; railway signals and communicating apparatus; hydraulics; ventilation; raising, lowering, and weighing heavy bodies; rolling stock; acids, alkalies, oxides, and salts; agriculture; optical, mathematical, nautical, and astronomical instruments. Mr. Weild, of Manchester, is abridging the specifications relating to railways; Mr. Brierly those for spinning and lace; and Mr. MacGregor, of *Rob Roy* canoe celebrity, has been engaged for at least three years on those relating to steam-engines. Mr. MacGregor seems to be able to paddle his own canoe with greater speed than he can abridge specifications.

MONEY PRIZES,

TO BE COMPETED FOR BY

WORKING MEN.

Messrs. Cassell, Petter, and Galpin beg to acknowledge the receipt of Essays from—

"Sparrow."
C. G.
"Voice of the People."
"The Non-Elector of Halifax" (1).
"The Non-Elector of Halifax" (2).
"Industry."
M. H. D.
"Labor omnia Vincit" (1).
"Labor omnia Vincit" (2).
"Labor omnia Vincit" (3).
"Uriel."
"Laus Labori."
"The scheme commands my care."
"Progression."
"Truth, Morality, and Uprightness."
"Home, sweet home!" (1).
"Home, sweet home!" (2).
"Perseverance."
"Labour and rest."
"Combination and Reproduction."
"'Tis blow for blow," &c.
"Thus men go wrong," &c.
"Unity, Peace, Plenty."
"Equality, Fraternity, Justice."
"Rest for the Weary."
"Honour to whom honour is due."
"Ononthio."
"Excelsior" (1).
"Excelsior" (2).
"Excelsior" (3).
"Excelsior" (4).
"One and all."
"Heaven's Grand Restorative."
"Gimel."
"Imprimatur."
Harry.
"No taxation without representation."
"Magna est Veritas."
"The Sabbath was made for man" (1).
"The Sabbath was made for man" (2).
"The Sabbath was made for man" (3).
"All labour is sacred."
"Diligence is the mistress of success."
"Omega."
"Gamma."
J. T. R.
"No Sunday leads to no religion," &c.
"Fides Deo."
"Wisdom is the principal thing," &c.
"Prove all things," &c.
"Non Compos Mentis."
"Let knowledge grow from more," &c.
"Tá-ar dtér reidh."
"No pains no gains."
"Young Byronian."
"Pax Vobiscum" (1).
"Pax Vobiscum" (2).
"The Pearl of Days."
"All the circumstances," &c.
"Employers and employed united."
"One who has Whistled at the Plough."
"The Development of Thoughts."
"To educate is to govern."
"Amwythig."
"A Sheffield Artisan."
"I speak as unto wise men," &c.
"We have dancing-schools," &c.
"The Sabbath is the working man's charter."
"The Couch of Time."
"Deny not to others," &c.
"The Shamrock."
"A good life keeps off wrinkles."
"Equity is the land," &c.
"Tenta."
"Union is strength."
D. L. C. C. R. W. F. S.
"Electoral Equity."
"Spero Meliora."
"And he rested the seventh day."
"Opus."
"Study brings profit."
"L'Union fait la force" (1).
"L'Union fait la force" (2).
"Work on, work ever."
"Blessed are the peacemakers."
"Experience."
"Index."
"Dieu et mon Droit" (1).
"Dieu et mon Droit" (2).
"L'ouvrier" (1).
"L'ouvrier" (2).
"By education," &c.
"Don't you wish you may get it?"
"Franklin."
"Pengwern."
"Upward and Onward."
"Turn away thy foot," &c.
"Ripple."
"Live and let live."
"Union is strength."
"Auld Scotia."
"If ignorance is bliss," &c.
"Cui bono?"
"Ratio."
"Omicron."
"Try it."
"Wisdom is better than riches."
"Hope evermore."
"Love your neighbour," &c.
"Euclid, iii. 35."
"Await the Issue."
"Onward, Upward, Heavenward."
"A day, what a trifle!" &c.
"A Sabbath well spent," &c.
"Let every man have his due."
"Better late than never."
"Thou health-reviving," &c.
"Rest and be thankful."
"Sacred Rest."
"Welcome, sweet day of rest!"
"Rest is sweet to the weary."
"The couch of time," &c.
"Non sibi sed patriæ."
"Save Sunday."
"Though evil doth," &c.
"Who are right?"
"Improving the time."
"God save the Queen!"
"Leptus."
"No such word as fail."
"Knowledge is power" (1).
"Knowledge is power" (2).
"Knowledge is power" (3).
"Justice to all."
"Free competition."
"Principle before talent."
"Beyrichia Complicata."
"Multum."
"Trinucleus concentricus."
"Zeno."
"Vox e Septentrione."
"Patience and Perseverance."
"Invicta."
J. H.
"Mene, Mene, Tekel, Upharsin."
"Nonne audiebam temporis et populi vocem," &c.
"A fortune in a wife," &c.
"Nil sine labore."
"A vote is a trust."
"Right before might."
"Hold fast and pull together."
"Junctus."
"Bene vivere his vivere est."
"For success, hope on, hope ever," &c.
"Qui non valeant," &c.
"Ex hoc et ad hoc."
"Pro bono publico" (1).
"Pro bono publico" (2).
"Dum spiro spero."
"Buy the truth, and sell it not."
"Vox populi vox Dei."
"Entire Sabbath."
"Spe vivo."
"To be true to nature," &c.
"Education."
"Casual Glimpses," &c.
T. L.
J. W. B.
"Pull together."

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JUNE 16, 1866.

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Political Intelligence.

The information communicated in this Journal relative to Mr. Clay's Intelligence Franchise Bill, has been the chief source of the public knowledge upon the question, so far as the press is concerned. Beyond what was said in Parliament, the chief elucidation of the subject has been furnished in the Working Man. Our correspondents who discussed the question did it in a manner which attracted the notice of the chief promoters of the Bill. As the question proceeds to obtain—as it will one day undoubtedly obtain—the approval of the public, it will be remembered as an historic curiosity, that in one paper alone the question was urged as useful to the working classes.

At the advent of the subject in Parliament, it has been mixed up with the party prejudices of the hour; and though the Bill was discussed an entire day, it was not discussed upon its merits, but used, on one side, as a means of frustrating another Bill before Parliament, and on the other side, it was dismissed with strong party condemnation. The intrinsic value of the principle had no attention; very little that was serious, and less that was true, was said about it.

We have concerned ourselves with the principle itself, and that alone. The first mode of bringing the principle into play, such as that adopted in the Elective Franchise Bill of Mr. Clay, may not be the best. It most likely will be, and we think is, open to amendment; but better modes can be devised, and will be devised, if the principle of intelligence as a test of political fitness be an inevitable one, as we think it will be, in the future stages of society. The old test of fitness for the franchise was power. Like property, those got it who were able, and those kept it who could. The men of landed interest were the arbiters of political power. When the franchise became extended to what were called householders, this was but a nominal variation of the landed interest, and only permitted so far as that interest could influence electoral results. But since population has increased, and landowners have decreased, and new commercial, factory, and mechanical interests have sprung up in the land, the old test has been changed, and floating property, apart from the land, has acquired power. There was a great outcry against it. No one was willing that peripatetic property, which might be here to-day and shipped to America or California to-morrow, should take a place of voting power equal to the fixed landholder. When the land line began to vary and vanish, a rental line was created, intended to represent quality and means. Now it transpires, in the great progress of the age, that rent does not represent mind, that patriotism lies deeper than rates, and that the highest qualities—those of intelligence and worth—exist among the common people as abundantly as among the uncommon; and the great experience of the cotton panic showed that the most needed qualities for self-government resided with the populace. The working classes of Lancashire acted well—not because they paid ten pounds of household rent, for they did not; nor because they paid certain rates, which they could not; nor because of any ancient way or principle of action among them, for their ways and principles were alike modern with the growth of modern times. They acted as Englishmen and patriots should act, because they were intelligent. The cheap press had made them men of sense. The intelligence of the people now rules. Public opinion, said the late Sir Robert Peel, governs; but public opinion is the average intelligence brought to bear on public affairs. To get at intelligence, then, is the true thing wanted. The worthiest men in the state oft remain poor. Honest industry does not always bring riches. Wealth is often impossible without crime. To make property the sole political qualification, is an error and an immorality. This base test is growing obsolete. A wiser, and fairer, and more popular principle is coming into notice—the principle of knowledge. Intelligence can be acquired without meanness, or personal slavery, or crime. Knowledge, Lord Bacon said, was power. It is not power yet, but it will be political power one day. It is a daily insult to honest poor men of sense to see the suffrage possessed by the most ignorant and unprincipled knaves in the land, if they happen to possess a little property, while no worth, or value, or service, or knowledge, counts for anything politically. At the hustings the ten-pound knave may be omnipotent, while the fit and honest man, falling below the line, is condemned to hoot his views, while his neighbour, without fitness or brains, can vote for his views. There is no doubt that all this will be amended one day, and the working man of intelligence be placed upon an equality with the well-to-do booby without it.

Electro-Plating.

The manufacture of electro-plate is a branch of industry demanding a special description. We have no details of this manufacture as carried on in England, but we have particulars of the Christofle Company's works at Carlsruhe, which are of first-rate importance, seeing that the total number of persons employed amounts to 1,432, involving an annual expense of £250,000.*

The metal employed in this manufacture is called *maillechort*, being derived from the names of the two workmen of Lyons, *Maillot* and *Charlier*, who recently invented this alloy, which closely resembles silver, having the same colour and "ring." In Germany it is called *argentan*, in England, *British silver*.

Maillechort is a compound of copper, zinc, and nickel—the nickel being added to render the alloy whiter and harder. The proportions of the metals are, ordinarily, in 100 lb.—copper, 55; nickel, 23; zinc, 17; iron, 3; tin, 2 parts. For inferior articles the proportion of nickel is as

* "Les Grandes Usines; Etudes Industrielles en France et à l'Etranger." Par Turgan.

small as 4 per cent.: *alfenide* contains 12 per cent.

The alloy is melted in crucibles, in quantities of half a hundred weight at a time. Two blast-furnaces working in conjunction produce a ton of flat ingots a day. These ingots are smoothed in a planing machine, specially contrived for the purpose, the knife of which is of the same width as the ingot, and, by a single movement, removes the rough surface: a workman can make 100 ingots a day. After planing, the ingots are put between powerful rollers, which extends them to five feet in length, and brings them to the desired thickness.

During the interval of the different operations, the ingots are heated several times, to restore their original elasticity. This operation is performed in a reverberatory furnace. After each heating the metal strips are cleaned by the usual methods.

Take, as an example, the manufacture of a spoon: the strips are placed under an eccentric cutter, which cuts the *blanks* which are to take the form of a spoon. The blank is of the same thickness throughout. It is necessary to vary this thickness, and at the same time lengthen it and shape the spoon. This result is arrived at by means of a steel roller, upon which the various shapes are cut.

These rollers are mounted upon the frame of the rolling-machine, with a fly-wheel, and produce six articles a minute.

The bowl now undergoes a first pressure for breadth. The handle undergoes a rolling for length and breadth, both at the same time.

The three portions are next extended to the exact dimensions of the finished article; it then only remains to give the last touches, which is called "finishing." This is performed on a machine having the form of the roller, but only making a "to and fro" motion, by means of an eccentric. The object of this machine is to effect a more uniform pressure, by lengthening the material more equally, without producing undulations.

In this machine the matrices, instead of being engraved rollers, are segments of steel mounted in blocks of cast iron, the pressure being regulated by means of screws. Two workmen are required for this operation: one places the articles, the other receives them and guides their delivery. This form of machine has been adopted, because in the rollers we cannot go on increasing in width indefinitely, on account of the cost of large rollers, while in the segment machine the surface to be worked is upon a circumference 24 inches in diameter. A pair of cast-steel rollers, $4\frac{3}{4}$ inches in diameter, are worth £15; when engraved, more than £20.

The greater the diameter of the cylinder the more regularly the rolling is effected, for the pressure takes place normally, on the surface; if this surface approaches a straight line, there will always be more chance of preserving the accuracy of the article submitted to pressure. The quality of the products resembles those furnished by the balance-lever, which are excellent. The balance-lever can scarcely turn out an article a minute; the segment machine produces eight during the same space of time. Besides, the pressure of the segment machine is never exercised except upon one point, and thus a smaller force will produce the same effect as a machine which, like the coining-press, impresses the whole surface of the article at once.

A single machine of this kind can easily furnish 150 articles a day, including the time necessarily lost in mounting and putting the machine in motion.

On leaving the machine the article is flat. To remove the roughness produced in the press, it is presented to a coarse emery-wheel, turning vertically, and the dressing proceeds rapidly. The operation is completed on a finer emery-wheel.

The spoon is next placed between matrices in the centre of a balance-lever; forks are cut under a lever cutter. The bend in the shape of each is given by means of a machine with two levers upon a cast-iron matrix containing the shape.

The flat portions of the spoon are now regulated by filers, who also work upon the teeth of the forks. This work is performed in a vice with wooden jaws, adapted for different shapes. The article is now ready to be polished.

PROCESS OF HAMMERING.

Polishing is performed on wheels moving with a velocity of 2,000 revolutions a minute. Pieces of buff, cut into different forms, are mounted on the axle of the wheel, and by means of rottenstone and oil, the marks of the file and the asperities on the surface are removed. A brush of bear's bristles completes the work, by rendering it perfectly smooth.

Between each operation the articles are conveyed to an office, counted, and verified, and all that have the slightest defect are withdrawn; the most trifling irregularity—a flaw, or black spots where the material is deficient—condemns the article.

It requires 6 lb. of metal to be melted and rolled in order to produce 2 lb. of articles fit to sell.

Many articles are shaped simply with the hammer. Their ornamentation is produced by the method known as *repoussé*—punched or chased work—by means of which arabesques, flowers, &c., are obtained, chiselled in relief upon the brass by the aid of a bar of elastic steel, one end of which is held by a vice, while the other end, slightly curved like a claw, is furnished with a round, polished point. This steel bar, placed upon the vase to be ornamented, receives a "to-and-fro" motion from blows with a hammer, so that its polished and curved end strikes in the desired spot and forms a depression or hollow. By a suitable rotary movement, the ornaments, in this manner, are executed with great perfection.

The number of articles annually produced by the Christofle Company is enormous, amounting to 80,000 dozen, distributed as follows:—300,000 dish-covers, 35,000 dessert articles, 550,000 coffee spoons, 90,000 table and dessert knives, and spoons of various kinds, consuming 8,500 lb. of silver. The establishment is paternally administered. The company looks to the future welfare of the workmen, and creates an important fund for their benefit, besides maintaining a number of beds for invalids at Vincennes and Vésinet. A workman who remains uninterruptedly ten years in the employment of the company receives a present of 500 francs in a credit on the savings bank: 150 francs for the first five years, three years more gives another 150, and two years more 200.

INVENTION OF THE STOCKING-FRAME.

The accounts which have been preserved of the circumstances connected with the invention of the stocking-frame are very confused, and in many respects contradictory, though there is no doubt as to the name of the inventor. This was William Lee, born at Woodborough, a village about seven miles from Nottingham, about the year 1563. According to some accounts he was the heir to a small freehold, while according to others he was a poor scholar, and had to struggle with poverty from his earliest years. He entered as a sizar at Christ's College, Cambridge, in May, 1579, and subsequently removed to St. John's, taking his degree of B.A. in 1582–3. It is believed that he commenced M.A. in 1586; but on this point there appears to be some confusion in the records of the University. The statement usually made, that he was expelled for marrying contrary to the statutes, is incorrect, as he was never a Fellow of the University, and therefore could not be prejudiced by taking such a step. At the time when Lee invented the stocking-frame he was officiating as curate of Calverton, near Nottingham; and it is alleged by some writers that the invention had its origin in disappointed affection. The young curate is said to have fallen deeply in love with a young lady of the village, who failed to reciprocate his affections; and, when he visited her, she was accustomed to pay much more attention to the process of knitting stockings and instructing pupils in the art than to the addresses of her admirer. This slight is said to have created in his mind such an aversion to knitting by hand, that he formed the determination to invent a machine that should supersede it, and render it a gainless employment. For three years he devoted himself to the prosecution of the invention, sacrificing everything to his new idea. As the prospect of success opened before him, he abandoned his curacy, and devoted himself to the art of stocking-making by machinery. . . . . Whatever may be the actual facts as to the origin of the invention of the stocking-loom, there can be no doubt as to the extraordinary mechanical genius displayed by its inventor. That a clergyman living in a remote village, whose life had for the most part been spent with books, should contrive a machine of such delicate and complicated movements, and at once advance the art of knit-

ting from the tedious process of linking threads in a chain of loops by three skewers in the fingers of a woman, to the beautiful and rapid process of weaving by the stocking-frame, was indeed an astonishing achievement, which may be pronounced almost unequalled in the history of mechanical invention.—*Self-Help: New Edition.*

On the Introduction of Beer into Working Men's Clubs.

BY THE REV. H. SOLLY.

As this subject is attracting increasing attention, it may be well to offer a few remarks on the subject in the columns of the Working Man, considering it, as I do, to be one of vital importance.

I mentioned, in a former number, that the question was pressed upon the notice of the recent Conference at West Bromwich by every one of the delegates then present, all of them advocating its introduction, under due safeguards, and being supported strongly in their views by Mr. Jones, secretary of the South Staffordshire Adult Education Society; and in reply to the arguments which I then used, in opposition to those views, the delegates replied, that if the men were relieved from the pressure of the landlord, and could drink beer unadulterated with drugs or salt, there would be no danger of excess beyond what the committee and steward could easily control. That, in short, if the men could have their own public-houses on the Co-operative principle, the present ruinous and demoralising system would be completely put an end to. The question is coming on again for discussion at the next quarterly meeting, to be held in Oldbury, and I would, therefore, invite the attention of the members of the South Staffordshire Clubs especially, and of clubs throughout the kingdom generally, to the following suggestion.

It was quite admitted at the West Bromwich meeting that constant supervision—nay, vigilant superintendence—would be required, to prevent any mischief resulting from the sale of beer in Working Men's Clubs—at all events, in that part of the country. But it was considered, that if two members of the committee were always present of an evening, and if the steward or housekeeper could be relied on, no harm would result. In reply to my question, it was stated, that should a man in a doubtful condition apply at the bar of the club for a pint of beer, the person in charge might refuse to supply him until a member of the committee had been consulted.

Now, all this (and much more might be said to the same effect) clearly indicates a conviction in the minds of the advocates for the introduction of beer that, to say the least, there would be serious dangers attendant on it. Every one acquainted with working men knows that, at the present time, one of their chief dangers and temptations to excess arises from the habit of "standing treat." This temptation would still exist, though the desire of pleasing the landlord were removed. The club and its members, in fact, would be sitting on a powder magazine, which a spark might at any time explode; because, even if the men in the club were not in danger of drinking to excess when the pressure of the landlord was removed, a man might at any time come in who had been drinking freely elsewhere of a less innocent mixture, and a pint that he got at the club, evading the vigilance of the steward, might be quite sufficient to finish him.

At one of the conferences held last autumn, Archdeacon Utterton, of Farnham, who has been instrumental in establishing a very large and successful club there, mentioned this difficulty, saying that, though he had desired to see beer introduced, thinking it the best chance for competing with the public-house, he had never seen his way to its safe admission; because, if it were sold at the club, men who have come in after they had had plenty elsewhere, might get completely upset by what they had there, and the club would bear the blame. Archdeacon Jacobs, at the same meeting, quite agreed that it was of the utmost importance to help working men to break the habit of tippling, and that he was quite convinced of the policy of excluding beer, adding with great force: "If we get the higher class of working men we shall gradually win over the lower; but I believe now we shall not get the higher sort if we introduce beer."

This goes very much to the root of the matter, because those working men who are most anxious to benefit their class, and who now continually make sacrifices for that purpose, are well aware that all their efforts are useless unless they can change the habits of their mates with regard to drinking.

I have constantly found gentlemen advocating the introduction of beer into clubs, but as constantly have found the working men themselves object to it. It was two clergymen, at this very conference before mentioned, who raised the discussion by asking if we did not think that beer should be introduced.

Let me here quote what I urged on the subject in a letter addressed to our friends at Leicester some time since:—

Clearly then, having regard to existing habits among working men, these men feel that, *under present circumstances*, the clubs would not prosper—would, in fact, become little better than beershops—if the rule in question were not enforced. But they feel and urge this, mark, not because the working classes as a rule are drunkards, or that the majority even are in the habit of frequent excess. To say that would be to libel the most industrious workers under the sun. No; but because those workers have so frequently the habit of drinking between meals—tippling, in short, when they are talking, smoking, and playing, especially of "standing treat," first one and then another, all round—in consequence of having had no place but the public-house for social intercourse and recreation. Now, the thoughtful working men who come forward to establish or join the clubs know that this habit must be broken if they are to make any progress, individually or as a class. Many years ago, as I believe I mentioned at the public meeting in Leicester, a hard-working journeyman blacksmith (not a teetotaler) said to me as we came out of a temperance meeting, "Ah, Mr. Solly, what you've got to do is to get us to give up the public-house. It's not what we get at home that would hurt us; *it's what we drink when we get together.*" Or, as another working man said recently, and as working men have said to me many a time in all parts of the kingdom, "It's the *company* that does it."

Few persons could live a month among the working classes of this country without perceiving that in this club movement we have to deal with an exceptional state of things, and that a rule is unquestionably needed in their clubs, at present, which in all probability will be no more required ten or twenty years hence, than it is now at the "Reform" or the "Carlton." But if any impartial judge still doubts the expediency of "prohibition," or the existence of the habit of tippling *when the beer is to be had*, let him reflect on the efforts now being made not only by official authority, clergymen, magistrates, and others, but by the working men themselves, in large numbers, to get the meetings of their Friendly Societies held away from the public-house. True, there would not always at first be the same inducements at a club to drink "for the good of the house;" but wherever beer was allowed, there would soon be offers to farm the refreshment department at a rate that would be very tempting to committees, often puzzled to make both ends meet; then, when once that was done, the sale would soon be pushed, and the pot-boy's well-known cry would be heard through the club rooms, "Any orders, gentlemen? give your orders, gen'l'men, if *you* please!" If that were resisted, the silent presence of the steward, or an occasional visit from him, with a slightly demonstrative gathering up and clinking of the empty pewter pots, would generally be quite sufficient. To restrict the consumption of each member, say to one pint, would be felt to be a far greater stigma by the men than to exclude it altogether, *except* in a dining-room.

I can quite believe that, in many places, if it were known that beer could be now had at the Working Men's Club, considerable numbers of men might join it who at present stand aloof, preferring the publican's fire-side and beer to the coffee-room of the club; but the question is, Would the real usefulness and ultimate existence of the club be thereby promoted? I cannot believe it, for it would be sacrificing the permanent good of these societies to mere temporary gain in point of funds and numbers, while their whole character and objects would be seriously injured; and, as it so often happens, for the sake of present apparent advantage the real worth of the enterprise would be to a great extent destroyed. I doubt very much if the men who would come merely because they could have beer would be likely to add anything to the general good of the institute, while they would be in constant danger of woefully interfering with its usefulness, and lowering its character.

If the clubs are to be of any use at all, it will surely be by helping to raise the tastes and refine the habits of working men, and by supplying them with better amusements and excitement than they have hitherto been dependent upon; and I believe that the present generation of gentlemen little know the extent to which many a respectable working man longs now to get out of the atmosphere and temptations of the beery customs so long prevalent among them. On this point let me again quote:—

But even if this danger (pushing the sale) could be averted, the fatal objection still remains: "It's the company that does it." No doubt there are thousands of working men who, as I said above, do not now come to the clubs, because they have been so accustomed to drink beer in their hours of relaxation, that they are not comfortable anywhere without it. They, of course, would vote for its introduction into clubs, unless they had resolved to break themselves of a habit which they felt to be wasteful and mischievous. But other thousands who now support the clubs, and object to the beer, do so either because they say, "We must help ourselves and (or) our mates to break that habit, and we can't do this as long as the beer is to be had;" or because they feel that they must protect themselves in the quiet and orderly enjoyment of the club, which would be sooner or later interfered with, if the men who can't enjoy themselves without beer were to come and drink at it. These men say, "When we want a glass of ale, we know where we can get it, and we prefer having it before or after we are at the club, or even going out and coming in again, to letting it be on the premises, where we could get it just when we wish—which, in the case of many of us, would be during a great part of the evening." Some, in short, want the club as a refuge for themselves, some for their companions, and in either case don't wish to have their social intercourse and recreation any longer marred by what they well know is the worst foe to the social elevation of their order and the well-being of their homes—viz., a habit which has to so great an extent been engendered by outward circumstances, and which, therefore, *by a change in those circumstances*, may, to a great extent, be eradicated.

Now, my dear sir, allow me earnestly to ask, Ought not those men, who are in no danger of taking "a drop too much," to have some consideration for the large number of their companions who *do* feel the tremendous force of habit and custom? Would it not be more *brotherly* to say they will get their pint as they pass "the public" *before* they come to the club, or at home, instead of insisting on having it where it would very likely lead other men to have a gallon? I take it for granted these steady men have a desire to see their class raised in the social scale, and that they join the club not merely to get a little good out of it for themselves, but also because they believe the club will improve the position and character of the working classes generally. But if they merely get their mates to drink in one place instead of another, I fancy they will not be doing them much good. The wives of the drinking men, at all events, would very soon be inclined to say, "Well, we heard this club was going to do such a deal for our masters, but we don't find much difference on Saturday nights."

PALISSY'S LAST DESPERATE EXPERIMENT.

His money was all spent, but he could borrow. His character was still good, though his wife and the neighbours thought him foolishly wasting his means in futile experiments. Nevertheless, he borrowed sufficient from a friend to enable him to buy more fuel and more pots, and he was again ready for a further experiment. The pots were covered with the new compound, placed in the furnace, and the fire was again lit. It was the last and most desperate experiment of the whole. The fire blazed up; the heat became intense; but still the enamel did not melt. The fuel began to run short! How to keep up the fire? There were the garden palings: these would burn. They must be sacrificed rather than the great experiment should fail. The garden palings were pulled up and cast into the furnace. They were burnt in vain! The enamel had not yet melted. Ten minutes' more heat might do it. Fuel must be had at whatever cost. There remained the household furniture and shelving. A crashing noise was heard in the house; and amidst the screams of his wife and children, who now feared Palissy's reason was giving way, the tables were seized, broken up, and heaved into the furnace. The enamel had not melted yet! There remained the shelving. Another noise of the wrenching of timber was heard within the house, and the shelves were torn down and hurled after the furniture into the fire. Wife and children then rushed from the house, and went frantically through the town, calling out that poor Palissy had gone mad, and was breaking up his very furniture for firewood! For an entire month his shirt had not been off his back, and he was utterly worn out—wasted with toil, anxiety, watching, and want of food. He was in debt, and seemed on the verge of ruin. But he had at length mastered the secret, for the last great burst of heat had melted the enamel. The common brown household jars, when taken out of the furnace after it had become cool, were found covered with a white glaze! For this he could endure reproach, contumely, and scorn, and wait patiently for the opportunity of putting his discovery into practice as better days came round.—*Self-Help: New Edition.*

*Co-operation among the Fisher-Folk.**

THE SCOTTISH FISHERMEN.

The importance of the position achieved by the dredgers of Whitstable will be best shown by what has not been done, but might have been done, by the oystermen of Newhaven, near Edinburgh. In the Firth of Forth there are several extensive and valuable oyster-beds, which are held from various owners, at an almost nominal rent, by certain of the fishermen who are members of a friendly society; but instead of these beds being held and worked on the co-operative principle for the general good of the members of the society in question, they are worked on the competitive plan of each man dredging for his own hand; and it is notorious that, in consequence of this way of working, these beds have been greatly abused by the abstraction of both brood and immature oysters, which have been sold at a cheap rate to the proprietors of private oyster-beds both in Holland and England. Had the Newhaven men cultivated oysters on a systematic plan, they might, from the low rent which they pay for the scalps, and from the facilities of rapid transit, coupled with the high price now obtained for oysters, have easily acquired wealth and independence. As it is, they have, we fear, lost their chance, for the Corporation of Edinburgh, to whom a portion of the Firth of Forth scalps belong, are so anneyed at the reckless and indiscriminate way the beds have been dredged, that they will not likely renew the lease, nor, in all probability, will the noblemen and gentlemen who are the owners of the remainder of the oyster-ground be induced to continue as tenants persons who are so careless of the future of the most valuable natural oyster-beds in the kingdom. Even at the present time a paragraph is going the round of the local papers to the effect that the small oysters, instead of being thrown back into the sea in order that they may grow large enough for the market, are being sold to be deposited in English feeding-beds at the rate of 9s. or 10s. per thousand. When will these fishermen learn common sense? If this course of conduct is continued, the people of Edinburgh will very soon have to buy their oysters from the capital of Maryland, in America!

The fishermen of Newhaven (on the Firth of Forth) are all men of excellent character, sober and industrious. A little time since they were engaged in what is called the winter herring fishery, and during the short season it lasted their efforts proved very successful. All have done well, and one or two of the men, it is said, have realised a considerable sum of money. Some boats took fish (herring) to the value of £40 every day, and one boat at the termination of the fishing had £400 to divide among its crew.

Many of the fishing-people of Scotland join together in the prosecution of the fisheries. It used to be at one time the rule in the Scottish fisheries for all employed to share in the work, and in the profit as well—indeed, at many of the smaller fishing villages it is still the custom for some of the poorer families to join in fitting out a boat; and there have been instances where the one boat, by prudence, industry, and good management, has served as the nucleus of a fleet. A boat and its appurtenances, such as a large drift of herring-nets (unfortunately, it takes a very long drift of nets now-a-days to catch a large quantity of herrings), and the necessary deep sea-fishing gear, costs, comparatively speaking, a great deal of money, say from £100 to £200, which is a large sum for poor fisher-people to accumulate. Yet there are families in the fishing villages who are really wealthy, the possessors of, perhaps, half-a-dozen boats, with the corresponding gear of nets, lines, sails, hooks, dredges, spare masts, &c.

The Whitstable system, described in our former paper, of carrying on business for the joint account of the whole community, is an admirable one; it is better than the system now largely prevalent in Scotland of the boat-master contracting to fish for the curer; this plan is always adopted during the herring season, and also by many of the fishermen for the disposal of their deep-sea white fish. The curer employs so many boats to fish for him, paying their proprietors so much for a certain quantity of haddocks, or herrings, as the case may be, he providing all the etceteras for the proper cure of the fish, or sending them to market fresh, if that be his way of doing business. The bargains made between the fisherman and the curer are worthy of being noticed. As regards the herring fishery, the curer usually contracts that each boat shall deliver to his cooper, or other servant, 200 crans of green—that is, fresh fish (herrings). A cran being forty-five gallons of ungutted fish, our readers will easily form a notion of the quantity; but to keep them right it may be assumed that a cran will contain say 800 ungutted herrings. Each boat proprietor, therefore, bargains to supply the curer with 160,000 fish, and, as a curer may have from fifty to 200 boats fishing for him in the course of a season—the late Mr. Methuen would have far more than the latter number—our readers will see what an enormous quantity of herrings is yearly caught on the British coasts. The bargain between the curer and the fisherman is always fixed at so much per cran. Let us suppose the sum to be 15s. per cran, then "a bounty" is always included: let us fix this, to be moderate, at £15 per boat; then a certain quantity of whisky has to be provided by the curer as well; also ground on which to dry the nets belonging to each boat he engages likewise dye-stuff, locally called *cutch* (catechu), with which to "bark" nets and sails, so as to prevent their being rotted by their alternate exposure to sun and sea. It will thus be seen that the curer has to pay a total sum of about £180 for his 200 crans of herring and the furnishings just mentioned; it is wonderful, therefore, when we take this sum into account, and add the charge for inland carriage, that herrings can be obtained so very cheap as we now find them to be. A change in the mode of doing business during the herring season is very much wanted. There is no certainty that any one boat will take 200 crans of fish during the season; indeed, the average per boat at Wick for some seasons back does not show 100 crans. Of course, the curer pays for no mere herrings than he obtains, but still the bounty money is faithfully exacted; indeed, it is always paid down at the time the bargain is made, which is generally about the conclusion of the current season. The commercial system which has been engrafted on the herring fishery is, to speak plainly, just a mode of gambling. Curers are, many of them, more or less dependent on buyers; buyers, again, hang on the skirts of one or other of the great foreign merchants—Austrian or Prussian; these apply to their bankers, and so the springs of herring commerce are moved, there being a binding together of the various interests in the way depicted. And, again, any ambitious fisherman can, by going to a curer, obtain the means of starting a boat; the curer will, of course, bind the fisherman to fish for him, obtaining for himself some little advantage in making the bargain, besides good interest for the money lent. The fishermen who thus hasten, as they think, to be rich, seldom do so well as those who work their way up to be proprietors by economy and industry. Three lads will, perhaps, club their savings, and so obtain a boat and part of the necessary gear, which they will go on adding to from time to time, as their "luck"—that is, success—will admit. They, of course, act as their own crew, obtaining the assistance of a couple of hired men during the herring season. The boat being their own, if they are lucky and make a good catch, they will do well, having so little outlay for labour, and in good time they will acquire another boat, and so grow in prosperity. One thing we would suggest to the fisher class, and that is the forming of an insurance fund. It is pitiful, wondrous pitiful, to know of the want and misery that is sometimes involved by some of the great storms that sweep the north-east coasts of Scotland. In a few hours, so sudden are the changes of weather, a dozen of mothers will be made widows, and fifty children will be fatherless. Were the boats and gear insured even for half of their value, it would provide a little fund which would, for a time at any rate, yield a sustenance to the widow and the fatherless.

On these calamitous occasions the fisher-folk are very kind to each other, and we have more than once known a family of bereaved little ones settled out in a fishing community, the most active persons in affording succour being those, perhaps, who had a great enough struggle for the maintenance of their own family; but, as a rule, the peer are always kind to the peer. Many of the Scottish fishermen are, we are happy to say, in very good circumstances, and possessed of what in their station may be esteemed great wealth. Some of the boat-owners also follow a trade, many of them being masons, carpenters, tailors, or small farmers; these only go out in the herring season, when more or less money is sure to be made. The herring season lasts only for a few weeks, but it is a period of great activity; and when we state that no less than 1,000 boats will fish from the little port of Wick for herrings during the present season, the readers of the Working Man will be able to form a judgment of how great must be the total "harvest of the sea."

* Continued from page 331.

CONVERSION OF CAST IRON INTO CAST STEEL.

A new process, for the rapid conversion of a mass of cast iron into cast steel, homogeneous and of great purity, has been thus described by M. Galy-Cazalat, in a memoir addressed to the Academy of Sciences:—"Cast steel is a combination of iron with some thousandth parts of carbon, and cast iron consists of iron and about five per cent. of carbon, alloyed with silicium, sulphur, and other metalloids. Hence, it results that steel may be obtained by causing currents of gas containing oxygen, and particularly superheated steam, to pass through a mass of cast iron in fusion. In traversing the mass of molten metal, the steam is decomposed; its oxygen burns the carbon and oxidises the iron, while its hydrogen takes up from the metal its sulphur, phosphorus, and other metalloids, which would render the steel brittle. In proportion as the cast iron loses its carbon, its temperature rises rapidly beyond the melting point of the steel. When the colour of the flames, which rise from all parts of the surface, indicates a suitable degree of decarburation, the steel is then run into the mould. This system, the most simple and least costly, of fabricating steel in large masses, was conceived by M. Galy-Cazalat, and experimented upon at the Palais de l'Industrie, during the Universal Exhibition of 1855. Since that period he has operated on a large scale, both in a crucible containing five tons of cast iron, and in a reverberatory furnace, of improved construction, the flame of which produces the steam necessary for the decarburation. Unfortunately, the characteristic indicative of the precise transformation of the cast iron into steel being uncertain, we obtain sometimes pure iron without carbon, and at other times an alloy of oxide of iron and too much carburetted steel, according as we allow too much or too little steam to pass through. This inconvenience was common to my process and that of Bessemer, who, in 1856, took out a patent for making steel, by causing to pass through the cast iron, in fusion, currents of air compressed at heavy expense by machines thirty times more costly than the reverberatory furnace, which produces the steam. Lastly, for the last three years, the inconvenience arising from the uncertainty as to the number of minutes after which the decarburating currents of air, steam—or, rather, oxygen—must be stopped, has no longer existed; the manufacture is regular, and we obtain always common steel by decarburating completely the mass of melted cast iron, either by air or by steam, and then adding 10 per cent. of spathic iron ore, to restore to the iron the carbon required to form steel. This steel, now used for railway bars, requires, however, to be re-cast so as to become homogeneous and of superior quality, and this second operation, which is carried on in crucibles containing 44 lb., doubles, at least, the cost of homogeneous cast steel." In reflecting upon the chemical reactions which take place in the crucibles, the author of the memoir perceived that for these reactions to be brought into play it is requisite and sufficient that common or heterogeneous steel be maintained, during at least fifteen minutes, in quiet fusion, and at a temperature of about 2,700 deg.; the metallic mass then becomes homogeneous, and its particles acquire a regular aggregation. Under these two conditions the oxygen abandons the oxide of iron to combine with the free carbon in the steel, whence it is disengaged either in the state of carbonic oxide or carbonic acid gas. The reverberatory furnace has been perfected, so as to be able to arrest the currents of decarburating gas, without their discharging orifices being obstructed by the liquid metal getting into them. It suffices, then, to shut the cock which lets the superheated steam into the bath, the mass of which is no longer agitated, and to open another cock, which sends a jet of steam into the chimney, so as to quicken the combustion on the grate of the furnace, which speedily reaches a very high temperature. We are aware that pieces of steel cast in moulds are full of cavities, which considerably weaken their tenacity. In order to give to the metal all its resistance, it is generally, after having been suitably heated, submitted to the pressure of a roller, or to blows of a steam hammer, which cause the particles of the metal to adhere closely, and the bubbles to disappear. The rolling and hammering being very costly, and often impracticable—as, for instance, in the case of steel cannon with trunnions

and handles—M. Galy-Cazalat has contrived to make these cavities disappear by submitting heavy guns to great pressures produced by gases, while the metal is still in a fluid state, in the moulds of sand, firmly bound by strong frames of iron of suitable resistance. For this purpose, immediately after the casting of the complete cannon, the whole is covered hermetically by a metallic cap, screwed firmly to the framework of the mould. This cap carries a vertical tube, furnished with a cock at the lower extremity, and closed at the top by a less-resisting membrane, or safety diaphragm. It contains six to ten grammes of powder, without sulphur, composed of eighty parts of saltpetre and twenty parts of charcoal. When the cock is opened the powder falls upon the metal, is ignited, and the combustion produces rapidly ten litres of gas for each gramme of the mixture of saltpetre and charcoal. The imprisoned gases under the cap exert on the surface of the liquid steel a pressure which is transmitted simultaneously and regularly through the entire mass of the cannon, effectually effacing the bubbles, and increasing the tenacity of the metal, which is the same throughout.

Mechanical Construction of the Houses of Parliament.

We do not propose to give any account of the political construction of the Houses of Commons and Lords, which, indeed, involves a curious system of architecture. We speak of the actual mechanical construction of the buildings, which has more direct interest for craftsmen. A paper was lately presented to Parliament, and published by it, from the pen of Dr. Percy, who has charge of the ventilation of the Houses of Commons and Lords, in which the doctor states some unexpected facts. The public are aware that that costly house—or, rather, houses—were built of friable stone. What could Sir Charles Barry be thinking of, to erect such an elaborate and ornate building of a material that would decay before Sir Charles himself died? Was it not a strange waste of public money to expend a quarter of a million upon a structure that would crumble in a generation? Was nothing known of the qualities of stone? Could not the architect tell one from the other? Did he not know which was which? If we select tried men for a public office which must terminate in a few years, should not an architect select a tried stone?

Even this inexplicable proceeding seems surpassed by a fact told by Dr. Percy. The Houses of Parliament are ventilated and warmed by pipes. There are fifteen miles of steam-pipes about the building; there are many hundreds of air-courses, under as well as above ground, beneath floors, in walls, over ceilings, and in roofs: some for supplying cold air, others for supplying warm air, and others again for carrying off vitiated air; there are air-valves in every part of the building; there are enormous smoke-flues running horizontally within and immediately under the roofs, with hundreds of chimneys in communication; there are 1,200 stop-cocks and valves, connected with the pipes; and there are a multitude of holes and crannies, as intricate and tortuous as the winding of a rabbit warren: and the astonishing thing is, that no plan of these pipes, flues, channels, and crannies was ever made. All this enormous expense was gone to, and this incredible network of iron was laid about, up and down, and not a note was made of the windings of this maze of currents and flues. He is a well-informed man who can make his way about the Houses and not lose himself; but who shall be able ever to follow these pipes and stop-cocks about? What man could hope to remember accurately all the details, even had he seen every stone and brick laid? It would need a professor of artificial memory to get all these facts by heart, and he would need to have some hereditary order of assistants, born with a knowledge of these particulars, or capable of acquiring them. We need not say that no such persons exist; and in the absence of plans, all sorts of blundering occurs. The First Commissioner, on being made aware of the state of the case, took steps to remedy the evil, and for several months an architectural draughtsman has been engaged for the purpose of preparing the necessary drawings of these concealed and subterraneous works. Aided by two of the most experienced men of the Parliament House staff, the laborious and difficult explorations have been going on for a long time, and are likely to continue. In many cases it has not been found possible to trace the course of these air-passages. At the end next Westminster bridge stands the Speaker's house. All the air-courses in the west front of Mr. Denison's residence, and in the river front, have been thus explored, described, and catalogued, and plans of them are in progress. In the course of these explorations, it was found that some of the fresh air supplied to the Speaker's house "passed over two urinals." This is an uncomfortable fact to publish, but Dr. Percy gives it in a note. It is necessary that some of the mysteries of ventilation should be known.

Obviously, a considerable time must elapse before all these explorations can be completed. Floors have to be raised, ceilings disturbed, walls broken into, and all sorts of excavations effected, before the truth can be known. Much has been discovered of which no one knew anything. Duplicate descriptions of all discoveries made, and of all tracings effected, are deposited at the Office of Works, where they will be securely preserved for future guidance. It is plain that, without accurate plans, this department of ventilation and warming must be at the mercy of the persons employed, and supposing any one of them possessed an accurate knowledge of the subject, which no one does, it would never do to trust to his memory alone.

There are many curious facts beyond these noticed, which we may find other occasions to enumerate. But we will not refrain mentioning now some of the freaks of effluvia, which may be instructive. Unless the courts and sides of these great Houses are kept perfectly sweet and clean, the fact becomes unpleasantly palpable in the building. If horse-dung happens to fall near any of the inlets to the House, the air entering becomes affected. The Commons' court, where carriages wait near the entrance to the Ladies' Gallery, is close to the inlet of air on that side to the House, and the presence of horses is often felt in the House. If a person while smoking merely walks through the Commons' court, in a few seconds of time a distinct odour of tobacco-smoke will be perceived, especially near the Speaker's chair. If a person smoke near the Members' entrance to the House, the odour makes its way up-stairs into the lobbies. When the kitchen windows of the House are open, and cooking is going on, the Members in the House find the flavour of dinners mixed up with their debates.

As the effect of gas works is just now in dispute, we may notice a remark occurring in Dr. Percy's instructive and well-written report. It is this. The smell of gas tar was several times perceived during last session in the House of Commons, and elsewhere in the Houses of Parliament, and on investigation it was found that the tar from the Chartered Gas Company was transferred from carts through open gutters into barges moored just under the south wall. "A representation of the subject was made to the directors of the company, and they promised immediately to abate the nuisance." "Nuisance" is Dr. Percy's word.

THERE'S MORE THAN LUCK IN THE SAVINGS BANK.

At a recent meeting in the Pottery districts, Mr. Baker said—"Many working men had their own houses, and many more might have had them had they been so disposed. Some years ago he took considerable pains to indoctrinate the Yorkshire operatives, amongst whom he moved, with the idea that any man might, by practising frugality, between the ages of eighteen and thirty-two, become the possessor of a freehold, and that by merely putting into a savings bank 3s. 6d. per week. On one occasion he was going through a large factory, when he came upon a party of young women at dinner, and the following conversation took place:—'Now, there are nine of you here: how many of you are married?' 'None of us are wed.' 'Well, how much money have you got in the savings bank?' 'Weer?' 'In the savings bank: you have been earning large wages for at least seven years, and you ought to have saved a good deal by this time.' 'We niver gie it a thowt.' 'What do you do with your wages?' 'Spend them, to be sure.' 'And you've a right to spend your own wages; but if you had saved 3s. 6d. a week for the past seven years, how much would you have had?' 'Dunno know.' 'Why, you would have had between £60 and £70 now.' 'Eh, should we?' 'Yes; and if you had each had £50 and £60 in the savings bank, how many of you would have been unmarried now, do you think?' They all lifted up their hands, and one of them exclaimed, 'There would have been some clicking for us before this.'"

PERFUMES FROM FRUITS.

The fourth process I have to describe to you is that of *expression*, which is confined to the fruits of the citrine family, viz., orange (*Citrus aurantium*), bitter orange (*Citrus bigaradia*), lemon (*Citrus medica*), bergamot (*Citrus bergamia*), cedrate (*Citrus cedrata*), and limette (*Citrus limetta*). The rinds of all these fruits contain an essential oil, ready formed in small vesicles, and various means are adopted to extract it. On the coast of Genoa, they rub the fruit against a grated funnel; in Sicily they press the rind in cloth bags; and in Calabria, where the largest quantity is manufactured, they roll the fruit between two bowls, one placed inside the other, the concave part of the lower and the convex part of the upper being armed with sharp spikes. These bowls revolve in a contrary direction, causing the small vesicles on the surface of the fruit to burst and give up the essence they contain, which is afterwards collected with a sponge. The rinds are also sometimes distilled, but the former processes, which are called in French *au zest*, give a much finer essence. The three principal essences of this kind used are orange (called also Portugal), lemon, and bergamot, which all enter into the composition of eau de Cologne, and many other perfumes. They are made in Calabria and Sicily, in the months of October, November, and December, and the quantity of fruits required to make one pound of essential oil varies as follows during that time:—

	October.	November.	December.
Oranges	1,500 ...	2,000 ...	2,300
Lemons	1,500 ...	1,800 ...	2,000
Bergamots ...	1,800 ...	2,000 ...	2,300

The essence produced by squeezing the rind is yellow; that made by the machine has a green tint: the more or less ripe state of the fruit also influences the colour. The following quantities are produced yearly on an average:—

	lbs.		Fruits.
Orange ...	300,000	made with about	540,000,000
Lemon ...	500,000	,, ,,	750,000,000
Bergamot ...	300,000	,, ,,	600,000,000

—*Eugene Rimmel.*

SOMETHING LIKE EXPERIMENTS.

Professor Doremus gave the first of a series of lectures at Brooklyn, on April 17th, entitled, "Views of Life through the Medium of Science." Some of the experiments he performed are described as follows in the *Scientific American*:—"Besides the novel experiments exhibited in these lectures, the ordinary class experiments are conducted on a scale which produces the effect of novelty. For instance, in burning potassium on water, a tank was used which extended entirely across the theatre, in front of the stage; covering the whole area of the space usually occupied by the orchestra, and the middle of this tank contained several hundred pounds of ice in massive blocks; upon this water and ice half a pound or more of potassium pellets were scattered, producing most brilliant corruscations of violet and yellow sparks and flames, and filling the whole theatre with a cloud of potash. Several gallons of liquid carbonic acid were condensed, and the bar of mercury frozen by it was a yard in length and two inches in width. To exhibit the combustion of steel in the blow-pipe flame, a whole saw and half of a long sword were burned, the sparks pouring forth in a shower fifteen feet in length."

Things Talked About.

Connected with the Corporation of London, and under the control of the Chamberlain, is a fund known as Wilson's Fund, employed to assist young and respectable tradesmen, by lending small sums of money, to enable them either to extend their business or to overcome some of the difficulties which, in the outset of life, the possession of but a small capital is unable to contend with. Nearly eighty years ago, we are informed, the famous Dr. Franklin gave to Philadelphia and Boston small sums of money, to be used for the encouragement of young married mechanics who might need an occasional loan. The bequest to Boston, which amounted to $9,000 (nearly £1,800), has, after doing much service, grown to $110,000, more than twelve times its original amount. Now, the habit of borrowing money is surely not to be encouraged. But it is, unfortunately, too frequently an absolute necessity. The loan society and the pawnbroker's shop are established facts; and though they are very frequently, as we all well know, resorted to by the improvident or vicious, they are nearly as often the only means open to the deserving, but unfortunate, of obtaining the actual necessaries of life. The interest paid is high; and a recourse to their aid too often necessitates periodical visits, one transaction overlapping another, until the borrower is in full career on the road to ruin. Better would it be if such a fund as Franklin's, or as the Corporation Wilson Fund, were in existence, to which those really overtaken by a sudden disaster could resort and receive assistance, to be repaid, when the struggle was past, with moderate, not crushing interest.

A meeting has been held for the purpose of organising a working men's excursion to Dublin in August next.

The trip is proposed to be for a week or ten days, and the London and North-Western Company have agreed to carry 300 persons by railway to Holyhead, and from thence by steamboat to Dublin, and to bring them back to London, for the sum of 21s. each person, and in addition to this sum 6d. each person will be charged as registration fee, to pay the expenses of printing and advertising. A good holiday is a good thing; but it must not be forgotten that the fare is only a part of the expense. A week's residence in Dublin will cost something, and it would be a pity to place the limit of the trip there. The interest of the town would soon be exhausted, and even short trips to view the scenery around—and the Wicklow mountains and the valley of the Liffey should not be left unvisited—will cost a few months' savings. We by no means discourage the idea of the proposed excursion: only, count the cost first.

Is the regulation of the Painters' Trade Union, referred to in the following case, generally known? We trust it will be reconsidered on the first opportunity. A painter employed to paint a butcher's shop stole a leg of mutton. When put on his trial at the Middlesex Sessions, the Deputy Assistant-Judge inquired if his employer had received any character with him when engaged. The master said that they were not allowed to inquire into the characters of their servants. The Court thought it was very extraordinary. A gentleman on the jury, who said he was in the building trade, stated that a short time ago the masters wished to have a character from the workmen's former employers before taking them into their service. Upon this matter the men of the Trade Union held a meeting, and agreed not to allow the masters to exact anything of the kind from them, as they believed that the real object of it was to give the masters an improper control over their men, and prevent them from obtaining employment from any other master, in case of any disagreement between the employer and the employed. Such a resolution is evidently wrong in principle; and can only have the effect of widening the social breach unhappily existing between the employer and employed. The prisoner in this case was actually a ticket-of-leave man; a fact of which his master was ignorant. Masters have an equal right with the men to security against imposition. Most especially so, when, as in the case of a working painter, the man is sent to work in other people's houses, where, if property is stolen, the master himself is liable indirectly to suffer in reputation, and the honest fellow-workman to be suspected and prosecuted. If a master gives a false character, he is properly liable to an action for damages; and employers are not, more than other folks, disposed to incur such a risk.

The sailors' strike at London and Liverpool is exciting great interest. An "Old Commander" has published some sensible observations on the subject. He says:—"The wants of our sailors are: Better accommodation on board ship; an improved scale of diet; half-pay for their wives and families, who are left sadly off in most cases; married sailors' homes, which shall ensure that they (inexperienced in household management as they must be) shall get the value of their money, and leave their wives in respectable quarters. Experience plainly proves that when seamen can leave their wives and families favourably-circumstanced, both keep steady; but the present state of things upsets, morally, many thousands of men and women. Sailors do not so much need an increase of pay as they do a change of direction in the employment of their money, which is now wasted on drink and bad women; though, with the present high prices of provisions, an increase of pay is probably a reasonable demand."

Some of the seamen of the port of London have held a meeting for the purpose of establishing a Seamen's Benefit Society. Such an institution might become of the utmost value; and the position of the promoters, in respect to the present aspect of affairs, may be seen from the resolution unanimously carried: "That this society will not support any of its members in a demand for higher wages than their present rate, except in the event of war, when they would be guided by circumstances."

The large sum of £22,100 has already been expended in consequence of the lock-out in the Sheffield file trade. The aspect of the affair is sad indeed; and we cannot acquit the masters of a full share of the responsibility of causing it. The allowance fixed by the Filesmiths' Union at the commencement of the lock-out, for the support of the men, was at the following rate:—7s. per week to single men, and 9s. per week to married men, with 1s. per week additional for every child. This allowance has, up to this week, been regularly paid to every man, and has absorbed the sum of £1,700 per week. What an admirable provident fund might have been formed with such a sum, added to the expenditure of which is the loss of full wages to the men, and of capital and property to the employer! Can nothing be done to bring about a better understanding?

We have scarcely more encouraging news from the Clyde engineers and ship-builders. The employers, at a meeting lately held, expressed their willingness, in answer to a proposal on behalf of the workmen, to concede a reduction of the working hours to fifty-seven, but were not disposed, in present circumstances, to give an advance of wages at the rate of five per cent., as claimed by the operatives.

The Hull bricklayers have turned out on strike. They require a half-holiday on Saturdays, and extra wages, in order to make up for the loss of time which would thus be sustained, so as to keep their week's wages at the present amount. The bricklayers' labourers also demand an advance in wages. Several public works will be delayed by this movement, but in one case (the New West Dock Works) the demand has been acceded to, as time cannot be lost.

The metropolitan boot and shoemakers who have made a stand for an advance of wages have partially gained their point, several of the largest West End employers having conceded a very considerable advance.

The Birkenhead Commissioners have resolved to spend £8,000 in purchasing land and erecting public baths—a good example to other corporate bodies.

A museum in connection with the Mechanics' Institute at Bishop Auckland, Durham, is projected. It is proposed to unite in one building several fine collections of geology in the neighbourhood, which have been laboriously collected for years out of the surrounding collieries, which can never again be explored. The seams from which they have been taken have either been worked out or have disappeared out of the earth's formation. Such local museums would be of great value in districts presenting any peculiarities of situation.

The Rev. Canon Girdlestone, of Bristol Cathedral, has been alarming the farmers of the west country by urging labourers to emigrate to Lancashire. He told them that labourers—scores of them—were much wanted; and any number from Devonshire, if strong, healthy, willing, industrious, and sober, could always earn from 20s. to 25s. per week. Now, if he were a strong, active fellow, like some he saw before him, he should say to himself, "I am not going to sit down and starve here, a poor, thin, miserable fellow, with 8s. a week. I will pack up my clothes in a bundle, and go into those parts where I shall get better wages for my labour." He advised them to get rid of their homey feelings and move off. On such low wages as they at present had it was impossible they could do their duty either to their masters or their families. The Canon has preached on the subject, lectured the farmers at a tithe dinner, and addressed the labourers themselves at a Friendly Society's feast.

Co-operative Intelligence.

BIRMINGHAM FORWARD CO-OPERATIVE SOCIETY.—This society, whose head-quarters are at 12, Graham Street, has just issued its first quarterly statement, which is as follows:—"Birmingham is one of the many towns that has been stigmatised as not being able to carry out the Co-operative movement, and the question is sometimes asked, How is it? You have as much intelligence as any other town in the kingdom. We have not space enough to answer the question as completely as we would wish, but one or two reasons may be given. The Co-operative Societies that have been in existence in Birmingham before, have been established upon the principle of withdrawal of shares. The success of a society on this principle must depend, in a great measure, upon the whim of its members, for should any of them get offended they will draw out their shares, and induce others to do so too, and by this means they curtail the operations of the society. No such curtailment can happen to your society, it being established upon the principle of transferring the shares. Each member by this means will bear an equal share of profit and loss. Another advantage of your society is that each member is only required to take up two shares, instead of five, thus placing the society within the reach of a larger number of persons. Your committee feel confident that the society only wants making known to be appreciated; for it is gratifying to them, in submitting their first quarterly report, to find that they can pay five per cent. interest on capital invested, and a dividend of 6d. in the pound on members' purchases, also carrying a sum to the reserve fund. It seems to us that a working man cannot invest his money better than in the Co-operative Society. The articles we sell he requires every week. We will suppose he has his £2 paid up, and that he spends £5 in the quarter at the store. We will take the dividend at the rate of 6d. in the pound. At the end of the year his shares will be worth 26s. each, or clear gain of 12s. in the year upon his £2."

EARLESTOWN.—The twenty-second quarterly report of the Earlestown Industrial Co-operative Society, Limited, shows that a dividend of 1s. 10d. in the pound to shareholders, and 11d. to non-shareholders, has been declared. Cash received for goods, £2,031 7s. 6d.; cash paid for goods, £1,793 11s. 8½d.; profits, after paying all expenses, £176 17s.

CO-OPERATION IN MIDDLESBRO'.—A few days since a meeting, which was more numerously attended than was anticipated, was held in the Odd Fellows' Hall, Middlesbro', to take some steps towards forming a Co-operative Building Society. Ultimately a committee was formed to draw up rules for the management of the concern. The committee have since had a meeting, and we learn that it is intended to have a capital of £10,000, raised in shares of £1 each. The society will be registered under the Limited Liability Act.

WINDSOR.—The committee of the Windsor Co-operative and Industrial Society, Limited, have published their third quarterly report, in which they state that the members' contributions and purchases have been greatly augmented since their last report. The number of members admitted since last quarter is 78, while they have only had a total of 10 excluded and withdrawn, so that there are at present on the books 220 members. The committee have had in contemplation the establishment of a butchering business amongst members, but as the contributions have been slow in coming in, they have deferred the subject till the quarterly meeting. They have also opened a branch store at Slough, which they hope, with the great patience and zeal of the members appointed to conduct the same, will go on as prosperously and economically as the parent society has done. The income for the quarter was £571 8s. 1½d., showing a balance of profit of £59 19s. 11¼d., which, after paying interest on shares, &c., allowed a dividend of 2s. in the pound on members' purchases, and 8d. in the pound on those of non-members.

General Information.

CLUBS AND INSTITUTES.

PADDOCK.—The inauguration of the lately-established Working Men's Club at Paddock recently took place in the Congregational schoolroom. About 150 partook of tea, after which a public meeting and *soirée* was held, under the presidency of Wright Mellor, Esq., who addressed the meeting at some length, and said the promoters had the good wishes of many absent friends, and he hoped they (the members of the club) would follow the advice of Mr. Lupton, and "strive and work, work and strive," for the prosperity of the institution. The object they had in view was a good one, and he felt glad that working men were imitating the example of those above them in forming clubs to amuse and instruct themselves; and he (the chairman) saw no reason why the working classes should not have their clubs as well. He entirely disapproved of the rule of the club forbidding discussion on religious and political topics. They had newspapers and periodicals of all shades of politics, and he could see no objection to the members calmly and quietly discussing questions which from time to time agitated the country. After referring to the advantages of proper means of recreation provided by Working Men's Clubs, he expressed a hope that they would multiply in numbers and enlarge their borders, and that the time was not distant when they would build a place for themselves in some snug corner. He concluded by referring to the fact of the Working Men's Club in London having recently expended £9,000 in erecting club-rooms; and although at Paddock they could not expend such a large sum, depend upon it, if they went about it in earnest, they would find plenty of friends ready to lend a helping hand. The secretary, Mr. S. Sykes, then read the financial report, which stated that subscriptions amounting to £37 11s. had been received, while the fitting up of the rooms, including chess, draughts, bagatelle-boards, &c., had cost £52 9s. 9½d., leaving a debt on the institution of £14 18s. 9½d. They had 131 financial members, paying 1s. 6d. per quarter, amounting to £9 16s. 6d. The expenditure was, for rent, gas, cleaning, &c., £7 1s., and for newspapers, &c., £3 18s., leaving a deficiency on the quarter of £1 2s. 6d.; but the sale of the old newspapers, &c., fully covered it; so that the income balanced the current expenditure.

LAMBETH WORKING MEN'S CLUB.—The first quarterly meeting of this society was held, on Monday evening, in the large and convenient building called the "Ragged Schoolrooms," Lambeth Walk. W. H. Miller, Esq., presided; and Mr. Whymper, the honorary secretary, gave a short account of the past history and present position of the Club. There are about 100 members belonging to it, paying a penny a week. Premises had been taken close by, but they were far too small and inconvenient, and a great effort was to be made to build a large room at the back. There is an excellent cricket club formed by the members of this society, meeting in Battersea Park once a week, and a discussion meeting has been kept up with great spirit every Thursday evening. The Rev. H. Solly was then called on to deliver an address on the advantages of Working Men's Clubs, and was followed by the Rev. G. D. Evans, and other ministers and friends of the movement. A number of songs and glees were given in capital style by members and friends of the Club in the course of the evening, and a piece of music was beautifully played on the piano by Miss Morse. In spite of the pouring rain, there was an excellent attendance, every seat in the large hall being occupied by working men and their wives. The result is mainly attributable to the very sensible custom, now becoming increasingly prevalent, of enlivening such meetings by vocal and instrumental performances. It is satisfactory to find that these very useful societies are at last taking root on the other side of the water. For a long time Lambeth seemed utterly unable to establish or maintain a Working Men's Club; but in addition to the above, the one established some time since in Miller's Lane, and which seemed for many months in a state of

suspended animation, has recovered under the energetic efforts of the honorary secretary, Mr. Cole, and a few other friends, and it now appears to be tolerably well supported by the working men of the neighbourhood.

Rotherham and Masborough Working Men's Club and Institute.—Mr. Solly writes:—We have just received the report and balance-sheet of this excellent Club for the year ending February 28th, 1866. The latter strikes us, as showing an expenditure which in its objects and proportions is almost a model of its kind, agreeing with a shrewd observer of these Clubs that a balance-sheet gives a great insight into their working. The report itself is very satisfactory, and the following paragraph in it is especially worth quoting:—"The evening classes, lectures, debates, and recreation meetings are, upon the whole, well attended, and the improvement manifested in the scholars evinces their desire to learn, and reflects great credit on those gentlemen who have voluntarily come forward as teachers." The premises now occupied by the Club will shortly be wanted by the South Yorkshire Railway Company, hence the Committee remark—"This is a question which demands serious attention. Efforts have been made to secure suitable premises in the town, but there appear to be none sufficiently convenient for the growing requirements of the Club. Under the pressing circumstances, your Committee, after mature consideration, determined to test the feelings of the working men by convening a meeting for the purpose of discussing the necessity of building suitable premises. Several public meetings were held, which resulted in a project, now in formation, called the 'People's Hall (Limited),' in £1 shares, payable by instalments. Although this project is entirely unconnected with the Working Men's Club, arrangements would be made in the erection to provide suitable rooms for their requirements." Since the above report was written, it seems probable that a coalition will take place between the Club and the Mechanics' Institute in the town, as the latter possesses a fine building, but, as usual, no mechanics belonging to it. The report concludes thus, and we heartily congratulate the Committee and members on the satisfactory results they have been able to achieve:—"At the close of this second year of the Club's existence, your committee congratulate the members upon the liberal support they have received, and the favourable results this institution is working. Now that the freshness and novelty have worn away, a fair view of its real strength is shown, and they believe that the Working Men's Club has established for itself a permanent footing amongst the institutions of the town."

Coventry.—The committee of the Working Men's Club, in presenting the report of the third year's proceedings, congratulate their fellow-workmen upon the position of the institution. Established, in the first instance, by the kindness of friends, as a place of unobjectionable resort in a time of want of employment, it is with satisfaction that your committee may now look upon the last two years as an indication that the working men are disposed to maintain, by their own exertions, a place for mutual improvement and social intercourse. The Working Men's Club is deeply indebted to the exertions of many young men, whose services in the Tuesday evening entertainments reflect great credit upon themselves. A most substantial proof of the use of the institution is, that the net receipts have amounted to £18 3s. 11d., after a large outlay in what may be called properties. The committee trust that these friends will continue their exertions, and that every year improvement will be made. The circulation of the library has been satisfactory; and the committee refer with pleasure to the financial statement, which shows a balance of £8 1s. 2d.

EMIGRATION.

Value of European Emigration to the United States.—The United States receive annually from Europe an enormous tribute in two kinds—men and money. Mr. Carlyle has calculated that a live European man with his five fingers must be worth more than a horse. He probably is worth a very great deal more to a country which can provide him with land and occupy him with labour. But no emigrant comes empty-handed, like a dumb animal. Amongst the poorest class of immigrants the average sum which each man brings is £13 12s. Amongst the higher class it has been estimated at £36. We must, however, reduce this sum considerably in practice, because enormous amounts are remitted by the immigrants to their friends in Europe, to enable them to follow their example. The money, therefore, brought by each settler has not unfrequently been derived immediately from the very country to which he returns it. But if we were to reckon that every able-bodied man brought nothing but himself, like Moses on his return from the fair, the value of the 200,000 or 300,000 annual immigrants would not be sensibly diminished; for America can set them to work, as soon as ever they arrive, on the most profitable of all occupations, in a country where the soil is untouched, and the means of communication unlimited. Not quite one-third of the vast territory of the Republic, in size somewhat larger than Europe, has hitherto been surveyed, and "seven-eighths of the entire population are engaged in agricultural pursuits, or in the various professions and trades materially dependent thereupon."

Correspondence.

**** We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

A LESSON IN COURTESY.

To the Editor of the Working Man.

Sir,—You have published some extracts from Mr. Rupert Kettle's book on "Strikes and Arbitrations," and I have met with other passages which induce me to recommend it to others as a good book. I do not propose to attempt to review it; that task must be left to more practised hands. But the author relates an anecdote in reference to one of those apparently small matters, which really involve a principle, and sometimes produce great results. This is the story:—"When the mining district of South Staffordshire was convulsed by the last great strike, and when enough loss had been sustained to prove that both parties were thoroughly in earnest, a meeting was arranged between a deputation from the masters and a deputation from the men. The meeting was fixed for a certain hour at one of the principal hotels in the neighbourhood. At the appointed time the workmen's delegates went to the place of meeting. They were ushered into a grand room, in which the masters had been assembled some hours before. The men found the negotiants whom they were to meet upon equal terms already seated at a long table, with writing materials before each, and their chairman presiding. The men's delegates were directed to a bench at the end of the room as the place provided for them. Here they sat in a row, dangling their hats. When all were seated, and the scrutinising eye of ten-master-power was upon them, the masters' president opened the negotiation with—'Well, what have you chaps got to say for yourselves?' That question cost the district an incalculable sum of money—positively tens of thousands of pounds. The asking of it was, indeed, nothing less than a public calamity. Yet the masters' chairman could have had no intention to wound the susceptible pride of the men, for he was naturally most genial and kind-hearted."

Doubtless he was; but he seems to have possessed the unfortunate gift of being able to say very irritating things. His words would not, probably, have rankled as they did if it had not been for the slight cast upon the men by seating them on a bench while the employers were comfortably established in easy chairs and at a table. The masters were not assembled as a bench of magistrates, but as business men wishing to discuss with other business men matters on which they were equally interested. True courtesy never ostentatiously parades differences of condition, and consequently obtains more real respect.

I believe the men were well disposed to discuss temperately the matters in dispute. I am sure they would not have wantonly insulted the employers; but they had a perfect right to be treated as men, and that is very nearly the same as being treated as gentlemen. "You chaps" would irritate anybody; and I, for one, do not wonder that matters grew worse than before.

I do not write for the purpose of raking up a past grievance, but because in similar circumstances a similar mistake might be made. A great many evils might be remedied peaceably, if people would only approach the discussion in a mutually respectful and conciliatory temper. At least, that is the opinion of Piston-rod.

THE PROPOSED PEABODY STATUE.

To the Editor of the Working Man.

Sir,—I have read in the papers that it is proposed to erect in the metropolis a statue of the kind-hearted and liberal-minded George Peabody, as a lasting memorial of his munificent gift to the poor of London. With the feeling which has prompted this expression of grateful thought I have no fault to find, but surely it might have suggested something more appropriate than a statue, which in this country often becomes a butt for ridicule. Why not have the Peabody Institute, the Peabody Museum, or some similar institution, established expressly for the use of the working classes? Such an institution would be in harmony with the spirit which led George Peabody to devote so large a portion of his wealth to the erection of improved homes for working men. I beg to commend the idea to the promoters of the Peabody testimonial, and feel assured that if they adopt it they will not find the working classes of London backward in subscribing to the fund.—I am, Sir, yours respectfully, A Practical Man.

SUNDAY TRADING.

To the Editor of the Working Man.

Sir,—Much has been said about the evils of Sunday trading, and the necessity for putting it down. Now, I do not wish to defend the system, but it strikes me that the attempt to suppress it is being conducted on an entirely erroneous idea as to its real causes, the principal of which is, undoubtedly, late shopping on Saturday evenings; for, although many of the Sunday purchasers are those who have deferred their purchases until the last moment, the great majority consist of those—such as costermongers, shop porters, and the like—whose occupation is not over until ons or two o'clock on Sunday morning. These people have no opportunity of making their purchases on Saturday evening: they must wait until the Sunday morning. If the Saturday night shopping could be thrown earlier into the day; or, still better, if wages could be paid in the middle of the week instead of at the end, many of these now detained in their avocations until midnight on Saturday could be released from their labours, and make their purchases on Saturday night, thus diminishing the number of Sunday buyers. Sunday trading will never be put down, but would rather be increased, by any attempt at legislation.

Jack Plane.

TO CORRESPONDENTS.

Query.—It is said that of the deceased Presidents of the United States, Washington, Madison, Monroe, Harrison, Tyler, and Tayler, were Episcopalians; Jefferson, John Adams, and John Quincy Adams were Unitarians; Jackson, Polk, and Lincoln were Presbyterians; Van Buren was of the Dutch Reformed Church. The surviving Presidents are Filmore, a Unitarian; Pierce, a Trinitarian Congregationalist; Buchanan, an Episcopalian; and the present Chief Magistrate, Johnson, who is a Presbyterian.

A Poor Ignorant Ploughman.—We regret that we cannot see our way to use your letters, creditable as they are to your heart and head.

Non-Elector.—The discussion having closed, your letter cannot appear. Had it been forwarded earlier, we would gladly have inserted it.

H. Bool.—The Ophthalmic Hospital, Moorfields.

T. E. J.—Procure the London University Calendar.

Typo.—The first number of the *Weekly Political Register*, with which William Cobbett's fame as a writer is so intimately associated, appeared in January, 1802.

T. S.—The Stalybridge Mechanics' Institution was established September 7th, 1825.

Stephen.—The latest return of the cost of our iron-clad ships is as follows: *Warrior*, £310,000; *Black Prince*, £299,000; *Defence*, £217,000; *Resistance*, £255,000; *Hector*, £244,395; and *Achilles*, £389,219.

C. W. (Leeds).—Thanks for your offer, but our arrangements are complete.

Thomas Briggs.—Please repeat the question alluded to.

J. W. B.—Your wish shall be complied with.

Une Mere.—The subject is important, and shall not be lost sight of.

Banker.—We do not advise in such matters.

*** We are compelled to decline a letter which we have received, signed, "A Member of the Operative Masons' General Union."

W. W.—You must contribute towards the support of the child until it is fourteen years of age. The children would not be allowed to work, save as "half-timers." The third question should be submitted to a respectable solicitor.

Miner.—The recent accidents with the new explosive agent have induced Mr. Nobel to turn his attention seriously to the subject of rendering nitro-glycerine non-explosive and explosive at pleasure; and he is now enabled to state that, by mixing the nitro-glycerine with methylic alcohol—a cheap spirit, popularly known as spirit of wood—the nitro-glycerine is rendered unexplosive, either by percussion or heat. When required for use, water is added, which absorbs the spirit, and the oil sinks to the bottom of the vessel, whence it is drawn by a syphon, and its explosive nature thereupon found to be restored. Experiments for testing the value of this discovery have already been made in America, and given highly satisfactory results.

A Preston Lad.—"Christmas Day and Good Friday must be kept as holidays; and, besides, there must be eight half-holidays each year—four of these must be between the 15th March and the 1st October. Notice must be given the day before, and be fixed up at the entrance of the factory, and in such other place as the inspector may direct."—3rd and 4th Wm. IV., c. 108; and 7th Vict., c. 15.

A Finisher.—There are several provisions for fencing machinery, and regulating the size and ventilation of workshops. The informations to be laid before two magistrates, within five miles of the place where the offence occurs. No appeal is allowed, except the offence is punishable by fine or imprisonment, or the penalty is more than £3.

Pick and Spade.—The first mention of coal appears to have been made about 2,000 years ago by Theophrastus, a pupil of Aristotle. He stated that it was found in Liguria.

W. L.—In France, in 1670, during the reign of Louis XIV., it was ordered that master masons, carpenters, and slaters should give their names and addresses to the commissioner of police for their quarter, and be always prepared to turn out with their men immediately on an alarm of fire being given. They were to be paid for working at fires, and heavily fined if absent.

Received:—Peter, O. W., Tailor, Spero, One who Thirsts for Information, Banter, A Working Man, Mason, C. R. S., Captive, Long Hours, and Swallow.

"WORKING MAN" LIFEBOAT.

(*3rd List of Subscriptions.*)

	£	s.	d.
Acknowledged in No. 23..	29	12	1
R. A. M'C. (?), Kingholm, Dumfries	0	9	5
W. H. Spargo, Penryn ..	0	2	0
P. Holcroft, West Gorton	0	7	5
J. Bailey, Nottingham ..	0	4	0
J. Major, Islington ..	0	3	6
T. F. M., Hendon (?), Sunderland	0	10	6
J. Woodward, Templar Terrace, Liverpool ..	0	2	0
The Employés of Messrs. G. Smith and Co., Woolwich, S.E.	0	9	3
W. Morsley, Knodishall	0	3	4
J. Carter, Great Bedwyn	0	3	6
J. Elliott, Morson Street, Lambeth	0	5	0
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J. Ganble, 57, Spring St., Hull	0	2	6
A. Gaonham, 9, Coombs Street, City Road ..	0	5	0
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W. Barritt, Wellingboro'..	0	14	9
M. Ostler, Cheltenham ..	0	6	3
T. Grant, Hull	0	5	0
T. M., Birmingham	0	1	0
W. W. S. Bird, Blandford	0	9	0
	£35	12	8
Amounts over £1 unacknowledged	15	0	7
Total	£51	13	3

NOTICE.—The readers of the "Working Man" are solicited to bring the following announcement under the notice of any of their friends whom they may think will be interested.

Metropolitan and Provincial

WORKING CLASSES' EXHIBITION and INDUSTRIAL FESTIVAL, to be held at the AGRICULTURAL HALL, London, and opened on SEPTEMBER 3rd, 1866.

TO EXHIBITORS.

Contributions of Skilled Workmanship, or Amateur Productions, will be accepted from all parts of London, the Provinces, Scotland, Ireland, and the Colonies. For the benefit of Provincial Exhibitors, the Railway Companies have liberally offered to return unsold goods free, so that the expense of carriage will be but half the usual charge. Application for space to be made at once.

SPECIAL PRIZES.

The Council of the above Exhibition have much pleasure in announcing that, in addition to the MEDAL OF MERIT, designed for the occasion by J. S. and A. B. WYON, Esqs., the following SPECIAL PRIZES have been liberally offered by the gentlemen named, for the production of Articles to be Exhibited at the Agricultural Hall in September next, namely—

£15 0 0 in Money, or Silver Cup, for the MOST USEFUL INVENTION. Open to all Classes. The Gift of the Directors of the Agricultural Hall Company.

£10 0 0 in Money, or Silver Cup, for the best PAINTING IN OIL. The Gift of the Directors of the Agricultural Hall Company.

£5 0 0 in Money, or Silver Cup, for the second best OIL PAINTING. The Gift of C. COMFORT, Esq.

£5 0 0 in Money, for the best WATER-COLOUR DRAWING. The Gift of J. HARRIS, Esq.

£3 3 0 for the best GOLD BROOCH and EAR-RINGS, of Original Design, which can be sold for £10. (Sale for that sum to be permitted if required.)

£2 2 0 for the best pattern, Birmingham make, GILT BRACELET, BROOCH, and EAR-RINGS, which can be sold for £3 3s. (Sale for that sum to be permitted if required.)

£2 2 0 for the best Specimen of WHITBY JET JEWELLERY.

£2 2 0 in Money, for the best WORKING MODEL of a STEAM-ENGINE. The Gift of W. J. W.

£2 10 0 for the best ARTICLE OF UTILITY, made by an Amateur. The Gift of B. MURRAY, Esq.

£2 2 0 and a Silver Medal, the Gift of R. MURRAY, Esq., for the best WORKING MODEL of a MILL to grind Stale Crusts into Flour.

£2 2 0 for the best PEN-AND-INK DRAWING. The Gift of — SPEAKES, Esq.

£2 2 0 for the best Original Contrivance that may be suggested for improving the Fittings of WORKMEN'S DWELLINGS.

£2 2 0 for the best Specimen of SHEFFIELD CUTLERY. The Gift of T. RUDKIN, Esq.

£2 2 0 for the best Pair of LADY'S BOOTS. The entire work to be done by Exhibitor.

£2 2 0 for the best Specimen of INLAYING IN WOOD. The Gift of C. A.

£2 2 0 for the best Specimen of WOOD CARVING. The Gift of J. S. and A. B. WYON.

£2 2 0 for the best Specimen of CABINET WORK, made by an Apprentice who has served not more than four years to his trade. The Gift of Mr. I. HAYNES.

£2 2 0 and a Silver Medal for the best Specimen of ORNAMENTAL TYPOGRAPHY, consisting of a Quotation from Shakespeare, displayed and Printed in Colours, to occupy a royal 8vo page.

In addition to the above, the

EXHIBITION SILVER MEDAL

will be awarded to the Exhibitors of the best Specimens of

Household Furniture.	Stained Glass.
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Watch-Case Engraving.	Working Model of a Steam Vessel.
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Coventry Ribbons.	
Design for Paper Hangings.	
Embossing in Metal or Electro-Plate.	

☞ *Medals will also be awarded for other Articles which may be deemed worthy of especial distinction.*

All objects must be the work of the Exhibitor. In cases where Articles are the property of Employers, the name of the firm permitting their exhibition will be given in the Catalogue.

FORMS OF APPLICATION FOR SPACE may be obtained by sending a stamped and directed envelope to the Secretary, Mr. W. J. WATTS, 7, Birchmore Terrace, Cardington Street, Hampstead Road, London, N.W., or by application to any of the Honorary Agents. To be returned, filled up, on or before June 30.

Steamboat Excursion to HAMPTON COURT, Richmond, Kingston, or Teddington, by one of the new Citizen Steamboats, with improved Saloon Accommodation. This boat will leave LONDON BRIDGE (weather permitting) every SUNDAY and MONDAY, at Ten o'clock, calling at all piers, and returning in the evening.

Kew Gardens.—These Magnificent Gardens are Open to the Public every day, including Sunday. Admission free. Boats from CHELSEA to PUTNEY, Hammersmith, and Kew (weather and tide permitting), at low fares. Steamboats from London Bridge and all intermediate piers to Chelsea, every Ten minutes.

Steamboat Excursion to RICHMOND and TWICKENHAM AIT every SATURDAY AFTERNOON, by one of the new Citizen Steamboats, containing elegant Saloon Accommodation, which will leave LONDON BRIDGE (weather permitting) at 2.30 o'clock, calling at all piers, and returning in the evening. [2

BROWN AND POLSON'S

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CHILDREN'S DIET. [20

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A New List of Books and Prospectus of Works in the Press sent free to Order by Post. [5

LEATHER, UPPERS, AND SHOE MERCERY.

I. W. McLellan, Leather Mer-CHANT, 47, Lambeth Walk, S., has one of the largest and cheapest stocks in London.

Prime 36 lb. Buenos Ayres butts, 1s. 6d. per lb. Prime 32 clean foreign, 1s. 3d. per lb. A very prime lot of enamelled seals, 4s. per lb. Men's and Women's soles, 1s. 4d., 1s. 6d., 1s. 8d., 2s. Scotch hides, 1s. 10d. per lb. Elastic webs, direct from the loom. Price List free by post.

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Superior Brads, French and STEEL, 7 lbs. for 1s. 1d. Superior ink, 9d. per gallon. Copper toes, 2s. 2d. per doz. Men's iron-bottomed lasts, 2s. per pair. 20 lbs. clean English butts, 1s. 6d. per lb. Agent for Prout's Dubbin. 21 best plates, 5s. 6d. per gross. Scotch hemp, 2s. 7d. per paper. A liberal discount to all purchasers over £1, at I. W. McLELLAN'S, Lambeth Leather Warehouse, 47, Lambeth Walk, S. [6

TO CURRIERS AND BOOTMAKERS.

Dubbing, Direct from France, to be had only at the COMPTON LEATHER and CLOSED UPPER WAREHOUSE, 43, Frith Street, and 43, Old Compton Street, Soho, London. This Dubbing is identically the same as that used by the best Curriers in Bordeaux, and for dressing Kips, &c., is invaluable. Boots and Shoes are particularly benefited by its application. Sold wholesale and retail. By its frequent use the durability of all kinds of leather is greatly increased. [7

National Institution for DISEASES OF THE SKIN, 10, Mitre Street, Aldgate. Physician, Dr. Barr Meadows, 8, Hinde Street, W. Open on Monday and Thursday Evenings from Five till Eight, and on Wednesday and Saturday Evenings from Seven till Nine. Free letters are available for necessitous applicants. THOMAS ROBINSON, *Hon. Sec.* [8

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25	5 8	0 11 4	1 8 4	2 16 8
30	6 6	0 13 0	1 12 6	3 5 0
35	7 6	0 15 0	1 17 6	3 15 0
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THE

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A Weekly Record of Social and Industrial Progress.

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Official Judgment.

THERE is no conspiracy to suppress originality in this country. Even eccentric people have tolerably fair play. The public get sufficiently well bored by what may be termed the "regulation" people, and are glad enough of a little variety occasionally. Yet it must be owned that when any official person proposes to do anything which has never been done before, he is pretty well "set upon." A critical contemporary has taxed its powers of complaint (which are in a healthy state by reason of being a good deal exercised) in condemning a suggestion made by the South Kensington Committee of the Paris Exhibition, that examples of the literature of England should be supplied for the inspection of visitors to the general International Industrial Collection of Paris. There is nothing to be said against such a proposal which may not also be said against every form of mechanical exhibition. Some worthless articles, sent from unworthy motives, will be sure to creep into any public collection. Many contributors will be actuated by motives of vanity, and others will overrate the intrinsic value of their work. It is clear that the chance of this must be taken, or no exhibition could ever be got together. And if a vast expository exhibition of the industries of Europe is to take place, it is difficult to see why literature should not form a part, and especially its periodical productions; and to this end the Council of Education have invited specimens to be sent in of each newspaper, review, literary, artistic, or scientific journal, magazine, tract, or pamphlet, play, street-ballad, and the like, published in Great Britain, or in any of the colonies of Britain, during the year 1866. The contents or merits of these productions of the press are not in question. Whether the pamphleteer is right in his view—whether the new dramatist is likely to restore or renew the fame of Shakespeare—whether the new street-ballad is destined to arrest the ear of a future Macaulay, or elicit the approval and selection of Mr. Palgrave, are not questions which concern the Council of Education. Their object, and a very proper object it seems to us, is to present to the continental visitors to the Exhibition at Paris, examples of the fertility and versatility of the British press. The nature of its productions will be instructive, apart from the character of the productions themselves. Their variety and typographical execution—their style and sizes will have interest for the literary, as well as the printing world of Europe.

GEORGE GLENNY, F.H.S.
(From a Photograph by Maull and Co., Fulham Road.)

Mr. H. Cole has been censured for this design. As for that, he fares no worse than any other public servant who forms opinions for himself, and endeavours to take a useful initiative. The general policy of all officials is to do nothing. So long as they keep inactive and walk in the somnolent paths of routine, they escape censure. The public have no right to complain of this, if they acquiesce in condemnations whenever a public servant does anything. He may be wrong in what he does; in such case, let the error be pointed out, but it ought to be done with some consideration, and some praise ought to be given to that public servant who does anything. A great politician once said, "The errors of juries ought to be respected;" and we should say that the very errors of a public servant, who takes any initiative, ought to be judged with discrimination. There is no question that the whole of our public departments would be ten times more useful and better conducted than they are, if officials had the courage to act more on their own judgment.

In private, commercial, and business companies, practical suggestions of great value are continually made by persons engaged in one department or other. As respects mechanical inventions, it is well known that the greater number proceed from practical working men; while, in official quarters, suggestions and improvements rarely transpire. There routine rules. To overcome this organised inertia is one of the objects which friends of public progress set before themselves. It is, however, discerned to be good policy to encourage official thought. Men who will run risks, and take trouble to incite improvements, are to be applauded. There is a wealth of enterprise and amendment locked up in official departments. Most officers know how much better things could be done than the way in which they are transacted, but it is deemed prudent in an officer to hold his peace. And they will hold their peace, unless public encouragement is extended to every effort of usefulness they make. Even where the effort itself is a failure, the merit of making the effort should be distinctly credited. This policy would make better things possible another time.

George Glenny, F.H.S., the Working Man's Gardener.

LORD BACON describes gardening as the purest of all human pleasures, and as the "greatest refreshment to the spirit of man." But there is another interesting and no less established fact, which is, that gardeners, amateur and professional, enjoy better health and live longer, as a rule, than the followers of other occupations. Parkinson, herbalist to Charles I., died at 77; Switzer, a noted gardener in the time of Charles II., at 80; Evelyn, the compiler of the first garden almanack, at 86; Bobart, the supervisor of the Botanic Garden at Oxford in the seventeenth century, died at 85; Philip Miller, the greatest horticulturist of his day, at 88; Abercrombie,

the author of "Every Man his own Gardener," at 80; Dr. Duncan, the founder of the Horticultural Society of Edinburgh, at 83; and as many names could be given of persons now living, at advanced ages, who, it is but reasonable to suppose, owe their longevity, and their ability to enjoy it, to the healthy out-door exercise which the practice of gardening necessitates. This being admitted, the importance of encouraging a taste for horticulture among the working classes of large towns is self-evident; and he who labours to popularise as a recreation that which tends to sustain the health of the sedentary worker, besides exercising a beneficial influence on the mind as the beauty of Nature becomes developed under his care and observation, performs a service which can scarcely be too highly valued. To this public service has been dedicated the career of the veteran gardener whose portrait this week illustrates our pages, and whose name must be familiar with every one who has taken an interest in floriculture at any time during the last forty years.

Mr. George Glenny was born in London as far back as 1793, when all Europe, as well as himself, was in arms. He was apprenticed to a mechanical business, but having been taken by his father to see the tulips at a nursery in Walworth, where they were grown with remarkable success, he became enamoured of floriculture, and determined to try his hand at tulip growing forthwith.

Although indulged by his parents, and encouraged by many friends, tulips were rather above his means, for in those days they commanded very high prices. Determined, however, to obtain possession of the coveted bulbs, he entered into an arrangement with a nurseryman living in the City Road to purchase a whole bed of tulips for £20, unknown to his parents, to be paid for in instalments of 5s. per week, out of his pocket money. After having made some half-dozen payments, the youthful customer was astonished one day to find his purchase brought home without notice, and a demand made for the balance. This, of course, caused a dispute, which began in an under-tone on account of the secrecy of the transaction, but ended in an open quarrel, the noise of which soon brought the father to the door, and the facts had to be explained. A friend was called in to judge of the value of the tulips, when it was discovered that they were almost worthless, so the matter ended by the unscrupulous dealer having to take back his bulbs and return the money. This led, however, to Mr. Glenny purchasing for his son the stock of a grower in Spitalfields, a locality then celebrated for amateur gardeners, and from that time he became an enthusiastic florist.

The success which attended his efforts to cultivate and improve the growth of ornamental plants soon brought him into association with the most celebrated horticulturists, and he lost no opportunity of increasing his practical knowledge, or of displaying the results of his industry at the various metropolitan and provincial flower shows. In the course of a few years he took no less than 300 prizes, chiefly for tulips, ranunculuses, dahlias, geraniums, roses, and auriculas; and on one occasion, having invited fifty-seven guests to partake of his hospitality at Worton, where he carried on his professional pursuits, he had the gratification of placing a silver prize cup before each of his friends.

Mr. Glenny's first attempts at literary composition, which were not confined to the subject of floriculture, appeared in the *Antigallican Monitor*, and other unimportant magazines; but about 1820 he wrote a series of letters, which appeared in the *British Luminary*, of which paper he was afterwards appointed editor; and subsequently he became associated with the staff of a daily paper entitled *The British Press*. After this he undertook the editorship of the *Royal Lady's Magazine*, which numbered among its contributors some of the leading writers of the day, including the Ettrick Shepherd, Miss Pardoe, Miss Porter, Miss Mitford, the Misses Strickland, and Mr. Mudford. About 1832 he commenced the *Horticultural Journal*, which was followed by the *Gardener's Gazette*. In the latter paper he drew public attention to the mismanagement of Kew Gardens, which resulted in a commission of inquiry, and ultimately in a complete reform in the conduct of the establishment. The extent of this change may be gleaned from the remarks of Dr. Lindley, who took an important part in the proceedings connected with the investigation, and described the state of things at Kew as follows: "You rang a bell by the side of a wooden gate, which of itself was perfectly emblematic of the secrecy, the unnatural privacy of the working principle within. You were let in as if by stealth, as if the gate-keepers were ashamed to see you come, or you yourself were ashamed to be seen there. And when you were there you were dodged by an official, as if you were likely to carry off the St. Helena willow tree in your button hole, or one of the smaller hot-houses in your waistcoat pocket. You entered unwelcome, you rambled about suspected, and you were let out with manifest gladness at your departure. How gratifying is the contrast now!"

Besides editing several other similar publications, many standard horticultural works of a popular character have emanated from his pen, while, for the last twenty years, not a single week has passed but he has contributed articles on the culture of flowers, fruits, or vegetables, in one or more of the current periodicals of the day. Taking into account the fact that Mr. Glenny is a self-taught man, both as a florist and a writer, his career is a remarkable example of what may be accomplished by untiring perseverance and indomitable will.

It is the fate of enthusiasts to make occasional mistakes, and the career of Mr. Glenny is no exception to the general rule. Had he confined himself to speculations connected with the special interest he advocated so well, and about which he knew so much, he might probably have become a prosperous gentleman long since. Some years ago, however, he became enamoured of politics, and was induced to engage in a somewhat singular undertaking. On the reduction, in 1836, of the newspaper stamp from 4d. to 1d., the contraband "unstamped" was succeeded by several cheap papers, in which ultra-democratic principles and infidel opinions were advocated, with a virulence now, happily, unknown. Believing the influence exercised by these papers to be pernicious and a hindrance to real progress, Mr. Glenny proposed buying up these rabid members of the fourth estate, with the intention of continuing their issue as good cheap newspapers for the people, purged of all political and irreligious matter of an offensive kind. To carry out this scheme, he had received promises of support from several noblemen and gentlemen of influence, and he accordingly purchased Hetherington's *London Dispatch*, the *Trades' Newspaper*, the *London Mercury*, and other papers. As might have been expected, the result of the speculation proved a loss, amounting to upwards of £2,000, and this not being refunded to him as promised, sufficed to cure him of his political inclination.

Mr. Glenny has been associated, from time to time, with various public movements. On the death of the Duke of York, whom he knew as a patron, he called a meeting of noblemen and gentlemen at his house, at which Earl Cathcart presided, and proposed the erection of a monument to his memory, which was ultimately carried out under the presidency of the Duke of Wellington; and to a similar effort Greenwich Hospital owes the monument to Charles Dibdin.

During the period of Mr. Glenny's career, the art of improving flowers by cultivation has made rapid strides; and to him is, no doubt, due the credit of having taken a prominent part in bringing florists' flowers to their present state of perfection. When he commenced his well-known papers on the properties of flowers, about the year 1832, there existed no established standard of quality whereby to judge the merit of new varieties, and the opinions he advanced as to the possibility of improving the formation of certain flowers—such as the verbena, the chrysanthemum, the cineraria, &c.—were viewed as chimerical by most of the contemporary writers on the subject. He has, however, lived to see his theories adopted; his so-called impossible standard of perfection reached, and even surpassed; and his name mentioned as an authority in every department of horticultural operation.

Although in his seventy-fourth year, Mr. Glenny still retains full possession of his faculties, contributes to the press, and pursues his studies in his garden at Fulham. We understand that an effort is being made to present him with a public testimonial as an acknowledgment of the services he has rendered, and that Her Majesty has contributed £50 as an indication of her interest in this well-deserved compliment to the Working Man's Gardener.

*Condition of the Working Classes in Ireland.**

We have already referred to the condition of the Irish farm labourer, and purpose now directing attention to other classes of the sons of toil in "the Emerald Isle." There may be some necessity to remark here that, owing to emigration, labour is becoming scarce in the rural districts; and this present spring has seen the labouring man receive 10s. and 12s. a week and his food, in even the more backward localities of the country. Twenty years ago, the writer knew men glad to get 2s. and 3s. a week, with inferior food. So much, *en passant*, on the great change which has taken place in the wages of the agricultural labourer in Ireland.

Manufacturing industry is extending in various parts of the country. Belfast is, of course, the great centre of manufactures—it is to Ireland what Manchester is to England; but, just as there are many manufacturing towns in England besides Manchester, so there are many in Ireland besides Belfast.

In the province of Ulster, there are extensive manufactures carried on at Lisburn, Lurgan, Portadown, Armagh, Gilford, Banbridge, Dromore, Ballymena, Carrickfergus, Ballymoney, Coleraine, Londonderry, Strabane, Drogheda, and other smaller places. The linen trade is the chief feature in the manufactures of these towns; but with this branch of business is associated many others, less or more dependent upon it. There are bleach-mills, directly connected with the linen trade; foundries, in which machinery is made for use in the factories; iron ship-building, as at Belfast, Dublin, Cork, and Drogheda; and these and other branches of business give occupation to hundreds of thousands of operatives of both sexes.

In Dublin, the flax, cotton, woollen, and silk manufactures are carried on. Irish tweeds and Irish tabinets are known everywhere. The former are too often imitated by an inferior article; but the poplins or tabinets of the Coombe cannot be very readily produced in any form elsewhere. Iron ship-building, sugar-refining, and other trades, are also extending in the Irish metropolis. At Cork, Carrick-on-Suir, Portlaw, Waterford, and other places in the south of Ireland, manufactures are also extending and giving increased employment amid a decreasing population.

The result of this is, that the rate of wages is much higher now for skilled labour in Ireland than it was twenty years ago. A young woman in any of the mills of Belfast can make from 6s. to 20s. a week, according to her age and skill in her employment. A weaver of experience, who can attend two looms, will make 18s. or 20s. a week; while linen-lappers and girls attending sewing-machines in factories where shirts, as well as the linen, are made, earn equally good wages. The males employed in these factories, from the mere lads who attend the scutching-machine to the book-keeper and cashier, all receive salaries quite capable of keeping them as comfortable as the same class in England. In Belfast—which is a new and rapidly-rising town—you will find these classes living in neat and comfortable houses, built specially to meet their requirements. In this respect there is no town in the three kingdoms so well provided. Every working man in Belfast may have his own house at a cheap rent. There is no necessity for any family to live in a room. Houses provided with every accommodation for a working man's household can be had at rents of from £6 a year upwards. Street after street of these various classes of dwellings is to be found, and they are extending daily. This is a great advantage in Belfast, with its teeming population. A differential system of rating in Belfast has done much to promote the building of houses for the working classes. When the borough rate on all premises valued over £20 a year is 3s. in the pound, it can only be 1s. 6d. on all houses valued under £20; and on all houses valued under £8 a further deduction of 25 per cent. on the 1s. 6d. in the pound is to be made if the rates be paid before the 31st of August, we believe. Sir Richard Griffith's valuation, on which all rates are levied in Ireland, is from 25 to 33, or even 40 per cent. under the letting value. The reader will see, from this, that the erection of dwellings for the working classes is greatly encouraged by this

* Concluded from page 131.

system of rating. Whether it be a system otherwise based on any sound principle it is not for the writer to discuss here; but that it has worked well in providing comfortable houses for the working classes in Belfast, is a fact which cannot be disputed.

Perhaps there is no manufacturing town in the United Kingdom where the children of the working classes can so readily obtain a sound education. Every factory, almost, has its National school attached; and there is scarcely a block of streets throughout the town without one or two schools. Every place of worship has its school—some of them a dozen or score of schools—conducted under the system of National Education, giving united secular and separate religious instruction, as the parents of the children desire. With the working of the Factory Act and the National schools, the children have years and opportunities to become educated; yet, from one counteracting cause and another, many of the young enter the mills very deficient in education.

The necessaries and comforts of life (coal excepted) can be had, on the whole, rather cheaper in Belfast than in English towns; and, with wages good, the condition of the working classes is equal to anything which exists in either England or Scotland. There need be no one idle in any part of Ulster. There is employment for all at very good wages, and none may want all that is required to make home comfortable and happy, except through their own faults. We cannot say that this is so in every case; for, as in too many English towns, the publican thrives on the earnings of the working classes, which they ought to take to their own homes to render them all that they ought to be. We know working men into whose homes £3 per week could be brought to make them comfortable, but the publican gets £2 5s. of the amount, and 15s. is all that finds its way into the working man's dwelling. But "how could they live without a glass of something?" And glass after glass follows, until their homes are made hovels, and their lives miserable.

The Saturday half-holiday system prevails at all factories in Belfast, and an annual holiday in the summer, when the mill-owner gives his "hands" an excursion to the country by train, and some nobleman throws open his demesne for their recreation. These kindnesses are always well reciprocated by the *employés;* and seldom or never has any trouble arisen in Belfast from strikes amongst factory hands. Occasionally a question of wages has been in dispute, but good sense has prevailed, and everything has been amicably adjusted.

The influence of religion prevails largely in the great centre of Ulster. We regret that it has too often been exhibited in party riots and sectarian animosities; but, taking all classes into account, you find none ignorant of all the great fundamental truths of Christianity. Indeed, this, as we previously mentioned, is applicable to the entire population of Ireland—neither atheism nor infidelity can be found in the land amongst any class of her people.

What we have said of Belfast applies almost equally well to other manufacturing towns in Ulster, except that in no other is house accommodation so good. Lisburn, Lurgan, Ballymena, and even Londonderry, have some very miserable lanes and alleys, in which the working classes live in wretched homes, made more wretched still by the drink. Most of these towns are peculiar for some one class of manufactures, even in the linen trade. Lurgan is the great seat of the cambric manufactories, and its cambric handkerchiefs are unrivalled. Londonderry, on the other hand, is noted for being the seat of shirt manufacture, from the linen turned out of the mills of Belfast and other places. Wages are, as a rule, not so high in these towns as in Belfast; but house rent is less, and the cost of provisions much less, viz., potatoes, eggs, butter, milk, and other produce of the surrounding farms.

The workers in foundries, in ship-building yards, bleach-greens, and other places, are all able to earn fair wages, and can, on the whole, live as comfortably as in England, Scotland, or even America. Where wages are high the cost of living is equally so, and the comforts of life to be obtained are thus all as readily reached almost in one country as the other.

In Dublin, Cork, Limerick, Waterford, and other places in the south and west of Ireland, manufactures are not so extensive, and the means of employment for all are not so abundant. But matters in this respect are improving: factories are springing up in one place after another, and, with attention to industrial pursuits, the future of Ireland is full of promise.

It may be asked, If the condition of the working classes be thus hopeful in Ireland, why do we hear so much of Irish grievances and Irish distress? We distinctly and emphatically affirm, that there is no ground of "Irish distress" but is within the reach of the Irish people themselves to remedy; and working men can improve their own condition here, as elsewhere, without the aid of Government. We have a class of people in Ireland who seem to think that Government ought to do almost everything for them. We repeatedly hear a cry for "a paternal Government." If the harbours are to be improved, quays built, employment created, it is too often asked, Why does the Government not do it? We require to learn a greater spirit of independence of Government, and dependence in each other. If this latter principle could be well established in Ireland, employment could be created, trades started, manufactures promoted, and the material wealth and comforts of the people increased. These things are at least dawning upon Ireland, and the day is rapidly approaching when she will take her proper place by the side of England as a prosperous country, possessing a happy and a contented people.

Our Dinner.

I don't mean the bit of cold meat we take with us every day, when the shop is a long distance from home, or the beef skirt or Irish stew the missus gets ready by twelve o'clock, when we can go home; but our annual dinner—the bean-feast, or the wayzgoose, as it is sometimes called—which generally comes off about this time of the year, when the governors take a trip with us to the "Rye House" or the "Bald-faced Stag," or some other place where annual dinners are got up in good style for any number from twenty to 200. Those are the sort of places I like. Some shops do the scientific and fashionable, and go to the Crystal Palace, but that don't seem so comfortable like; and as for Brighton, where we went once, I would rather go there in a regular excursion—the ten hours by the sea-side, there and back in a day, for three shillings—than when we have got a dinner, and the governors, and speeches, and all that sort of thing, to think about.

No; I like the steady-going, old-fashioned sort of thing. Vans are not exactly bad things to ride in, only there are rather too many half-way houses on the road, that's a fact; and though it is only the horses who want their mouths rinsed out three or four times in a journey of ten miles, I have noticed that a good many of my mates find it necessary to get out to superintend the operation; and that, when we get to the end of the ride, they are not quite so fresh and clear-headed as they ought to be in the country air. The rail is the best, after all. We only stop at the stations, and there can be no getting out there; and it's of no use Briggs saying to Griggs, "Well, we don't have an outing every day, so what do you say to half a pint, or twopenn'orth cold, on the strength of it—eh, Bill?"

This is how we arrange the business generally: As June comes on, we begin to receive circulars from the landlords of different places, from five to twenty miles from London, where annual dinners are the regular thing. We are invited to come and see the place. There is a cricket-ground, a bowling-green, a skittle-ground, perhaps a stream with boats. If we like to pay 3s. 6d. a head, we can have quarters of lamb, ribs of beef, and legs of mutton, with tarts and cheese, ale and porter; another shilling will give us poultry; and for a crown we can be so aristocratic as to have three courses, salmon and stewed eels coming in before the roast fowls and ducks. Before we decide upon the scale we must see how the funds stand. Of course the governors come down well; some of the best customers make a present, and so do friends of the firm; and we have a little reserve from various shop funds towards the expenses; and then a shilling or two all round settles the matter. Two stewards are chosen, who, some Saturday afternoon, go to Broxbourne, or Upton, or Epping Forest, or Norwood, or Hampstead, or Gravesend, or wherever else we fix on, and look at the place and talk to the landlord, who generally convinces them in a very satisfactory manner that there is no mistake about him, or the quality of the fare he will provide.

So all is settled, and off we go. Saturday is the favourite day, because we most of us feel that such a treat as we are going to have is better for the end than the beginning of a week. The gates of the shop are shut, and a notice, written by the clerk in his best manner, explains that "the establishment is closed for the annual holiday."

We get down to the place about eleven o'clock, and as three is the dinner time, we set to work to play at cricket or bowls, or to have a pull on the water. Some of the lads find out that there are donkeys to be let, and go off for a gallop up the lanes; and the old, steady-going ones sit down and smoke their pipes, and try to persuade themselves that they are quite accustomed to all sorts of rural matters. Our cricketing is pretty good, considering that we are not playing a regular match, and that the best members of our club never can do anything worth mentioning when they have not got their spiked shoes and flannel trousers with them. Some of us, who never touched a bat before, insist on playing, and very funnily we do it. Jenkins goes in, and suddenly finds that everybody is calling out to him to run; so he throws down his bat and runs right across the field, as if a bull were after him. But we are all very jolly, and laugh at such mistakes; and don't we just chaff Brownsmith, who says he has been just having a pull up the river, and ask him how many crabs he caught, and whether they are to be cooked for dinner.

But three o'clock comes, and we all make our way to the big room, where the cloth is laid, and the waiters are already bringing in the dishes. The room does look handsome, and the company to match. We are dressed well, and no mistake. There are at least half a dozen white waistcoats, more than that number silk ones—pattern, large flower on red and blue ground. We are rather bothered what to do with our hats; they are good ones, I can tell you, and drab felts at 6s. 6d. are not to be put anywhere. But that difficulty is got over, and we are all seated; grace is said, and we set to work. Some of the old folks object to the four-pronged forks—left-handed ones, they call them—and others sit as far off the table as they can, turn back their cuffs, and never take their eyes off the boiled beef and carrots. The carving is a little difficulty. We don't like to tackle the fowls in public, for fear of making a mistake, and offer them to each other with the greatest politeness. But we contrive to eat a very good dinner, and when the cloth is removed we settle ourselves to listen to the speech-making.

The senior partner proposes "The Queen," and a private friend of the senior partner's proposes, "Success to the Firm," to which we all respond, making a great noise in doing it, and shouting, "Hip, hip, hurrah!" ever so many times. Then the governor proposes "The Manager," and the manager replies, modestly, from the other end of the table, and we rattle the glasses and shout "Hear, hear;" and one of us ventures to remark that "he's a good sort, he is." The turn of the senior foreman comes next, and he gets up with difficulty, and says he's a man of few words, and isn't accustomed to speaking in public; but he's sure—that is to say, he's been man and boy there for thirty years, and never had a complaint——Then he breaks down altogether, and looks very red and flustered. So we knock the table as hard as we can, and he sits down.

Now we shall hear what speaking is like. Young Wilkins gets up to return thanks on behalf of the men, whose health has been proposed. He belongs to a debating-society, and once addressed an open-air meeting to protest against five gas-works, four vitriol manufactories, three artificial manure works, and seven bone-boiling establishments being set up in the middle of a public pleasure-ground. He did not prevent 400 members of the House of Commons who held shares, protesting that nothing was so conducive to health and enjoyment as the presence of these interesting commercial establishments; but everybody says he spoke out-and-out, and we rather think that now he will show us how the thing ought to be done.

And didn't he just speak! He looked around him and beheld, he said; he saw glorious intellectual progress, he did; labour was going to arise, like something or other, from its ashes;

everybody was to be brother to everybody else; we were all to unfurl banners (which some of us do, being Odd Fellows, and walking in procession); and I don't know what we should have had to do next, for he was getting the steam up, and seemed to be throwing stones at something a long way off, if somebody had not pulled his coat tails, and said, "Cut it, Bob; we'll have the rest outside." So down he sat; and one or two, who believe in Wilkins, said, "That was good, that was; and we wish the Oligarchy had heard him."

Then the governor spoke; and though he did not use such fine words as Bill Wilkins, what he did say seemed to come home to us. He did not speak for more than five minutes; and he said he was glad to meet us all again, and hoped to meet us on many more such occasions; that any employer might be proud of such a respectable, well-conducted body of good workmen; and that he would always be happy to do his best for our comfort and prosperity. Our interests were mutual. We had each duties to perform; and if we discharged them earnestly and sincerely, a confidence and respectful friendship would be established, which was most desirable between masters and men. He wished us and our families health and happiness, and thanked us for our expressions of good feeling towards himself and partners.

We soon afterwards broke up, and got home comfortably. One or two were none the better for the trip, but they were sorry afterwards, and most of us, I am glad to say, set them a better example.

Perpetual Motion.

The discovery of a perpetual motion is a problem which has puzzled the ingenious for more than 2,000 years. We do not mean by it the invention of a machine that will act *for ever*, but one that will continue to move, and even be a source of motion, without the aid of any external agent, until it is gradually worn out in consequence of the natural destructibility of its materials. Perpetual motion, far from being an impossibility in itself, is illustrated by numerous examples on every side of us: for the heavenly bodies are, in the strictest sense, instances of it; since they move at this very moment, by virtue of impulses which they received, it is impossible to say how many thousands or millions of years ago. Indeed, motion is never lost; it is merely transferred from one body to another, or neutralised by union with motion of an opposite kind. But for friction and the resistance of the air, even the machines that we construct would move for ever—but for friction and the resistance of the air! these are simple words, but they express obstacles that never can be overcome. However ingeniously a machine may be devised, or however skilfully constructed, the force which itself consumes *must* be replaced or it will sooner or later cease to move. There is no such thing on earth as perfect smoothness; there is no such thing, therefore, as machinery without friction. All the motion we produce takes place in a resisting medium—even that which is effected in our so-called *vacuum;* and the moving this medium out of our way requires an effort. There are, therefore, two unavoidable destroyers of force always in operation, which will infallibly absorb it, however great it may be; and hence, to keep a machine in motion, we must either act upon it externally—in which case the motion would not be *perpetual*—or we must have recourse to some arrangement of the parts, which is the method adopted. But the very attempt reveals an ignorance of the fundamental laws of mechanics. Since a machine will modify force, but cannot create it, it will enable us, with a certain power, to move a large weight slowly, or a small weight with great velocity; but we cannot by means of it add in the least degree to the amount of motion at our disposal—on the contrary, from the functions of the parts and the resistance of the air, it cannot return to us even as much motion as we impart to it; and, therefore, it is a loss to us to be obliged to use it, however simple it may be. As well might we expect a vessel, from which the fluid is continually flowing, to remain constantly full, as a machine to remain of itself constantly in motion. The machine is to motion what the vessel is to the fluid—a mere receptacle for it. We may withdraw the liquid slowly or suddenly, but the emptying of the vessel is a mere question of time; we may take from a machine the motion we have stored up in it either instantaneously or by the slowest degrees, but sooner or later the whole of it will have been exhausted. The force we impart to a watch or a clock, during the short time we are winding it, is given back in a form more suited to our purpose; but, however long it may go without being wound again, it will stop at last, merely from friction of its parts, and resistance of the medium in which it is placed; and so it must ever be, whatever the mechanism employed.

Those who have attempted the discovery of a perpetual motion have, indeed, sought to attain

Fig. 1.

their object by calling in the aid of gravity, the elasticity of springs, magnetism, &c.; but, however we may conceal it from ourselves, and even from others, by the ingenious complication of our contrivances, gravity will never act unless it has been first overcome; the spring is inert unless it have been previously bent or straightened by force; and a magnet, if in any way it aids us at one time, will to an equal extent oppose us at another. A weight will not move a clock unless it has been first lifted from the ground; and having once fallen, it will act no more until it has been raised again. All that a fallen weight could do, were there neither friction nor resistance of the air, would be to raise a weight equal to itself. Once the spring has regained its normal state, it can produce no further effect until its tension is again violently overcome. In a word, we obtain from machinery only the motion we have imparted to it; and even that, subject to the diminution inseparable from the circumstances in which we are placed. The whole question, then, regarding a perpetual motion, as has been long since shown, resolves itself into that of finding "a weight heavier than itself," or "an elastic force greater than itself."

The search for a *perpetual* motion possesses great fascination for the young and ingenious, but still more to the avaricious, as it is very generally supposed to offer the chance of a large pecuniary prize. This, however, is not the case. No government has promised a reward for its

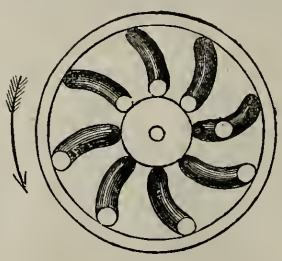

Fig. 2.

discovery; and, at present, any government, or any public body, would be ashamed even to suppose it possible. Nearly a century ago, the Academy of Sciences, at Paris, resolved to receive no communication having reference to it. The attempt to find a perpetual motion is now considered a proof of ignorance and folly rather than a sign of ingenuity; and those who fancy they have discovered it, are invariably ignorant of, or very little acquainted with, even the elements of science.

We may with safety condemn any contrivance of this kind, even unseen; and should not permit ourselves to be led into vain hopes, even by seemingly the best authorities. Apparently respectable testimony as to the *actual* solution of the problem has not been wanting at any period. The Marquis of Worcester, in the fifty-sixth of his celebrated "Century of Inventions," says that a wheel 14 ft. in diameter, with 40 weights, each of 50 lbs., was exhibited in the Tower before the king, foreign ambassadors, members of the nobility, and most of the court; and he appeals to the lieutenant of the Tower, &c., in proof of his assertion, that all persons then present "saw that, no sooner had these great weights passed the diameter line of the lower side, but they hung a foot farther from the centre, nor no sooner passed the diameter line of the upper side, but they hung a foot nearer. Be pleased," says he, "to judge the consequence." Yet this was a contrivance which has been tried a thousand times, and necessarily in vain. In the beginning of the last century, *Orffeyreus's wheel* caused the greatest excitement throughout Europe; and to put an end to the extraordinary infatuation it caused, Desaguliers read a paper before the Royal Society, which is found in the thirty-first volume of their "Transactions." In it he clearly exposes the fallacy of what was believed to be the principle of Orffeyreus's invention. It is scarcely to be wondered that the ignorant were led into error; for it was asserted by those apparently worthy of credit, that this wheel would move *in either direction* if a very slight impulse were given to it; that its velocity would become gradually accelerated, of itself; that this accelerated velocity continued for two months without diminution, during which time it was locked up and carefully sealed in the chamber of the Landgrave of Hesse; and that it was stopped at the end of that period only that it might not be exposed to unnecessary wear. When, however, an eminent man of science attempted to examine it critically, its inventor broke it in pieces, in pretended indignation at an unjustifiable curiosity. But perhaps a yet stronger proof of its not having been in reality what it was represented, is found in the fact that 80,000 crowns were refused for the secret. So recently as 1854, the editor of the American *Journal of Commerce* declares that the model of a machine possessing a "propelling power, *self-contained*, and *self-adjusting*, and having sufficient power to move clockwork without winding up," was exhibited at his office. It was described as starting into motion when the blocks by which it had been stopped were removed. Yet it was only the ordinary arrangement of "arms and balls."

Although the contrivances which have been suggested at various periods for the production of perpetual motion are both extremely numerous and varied, they are all reducible to the same very simple principles, which we proceed to illustrate. It has been attempted to render the force of gravity effective by contrivances which were expected to render one side of a wheel constantly heavier than the opposite; and one of the ways by which it was sought to accomplish this is represented in Fig. 1.

It consists of a wheel, round the circumference of which is arranged a series of rods, movable in one direction by means of joints, which attach one of their extremities to the wheel, and loaded with weights at their other extremities. When the wheel revolves in the direction of the arrow, the rods at one side fall out, so as to become continuations of the radii; and their weights, being then farthest from the centre of motion, produce their greatest effect. The rods at the other side fall downwards; and their weights being then nearest to the centre of motion, produce their least effect. Unfortunately for this and all similar contrivances, it can be shown that the sum of the effects produced by the weights at one side becomes very soon exactly equal to the sum of the effects produced by those at the other; but it will be enough for us to say that, from what we have noticed regarding the nature and uses of machinery, this contrivance *must* soon come to rest, and it has always been found to do so, to the astonishment not less than the disappointment of its numerous inventors.

The next apparatus (Fig. 2) is but a different application of the same principle. It consists of a wheel having grooves or tubes of a curved form, and in each of these grooves or tubes a ball of metal, or a quantity of mercury. When the wheel revolves in the direction of the arrow, the balls, or masses of mercury, at one side recede from the centre of motion, and thus act with their greatest effect; while those at the other

side approach the centre of motion, and thus act with their least effect. One side, therefore, is expected always to preponderate and produce motion; but the objections fatal to the last are fatal to this contrivance also.

Many other ingenious expedients have been used; but the general laws which render *Perpetual Motion* an impossibility, can be shown to be applicable, in one way or another, to them all.

Spinning.

WOOL-SPINNING and weaving have been common in England from very early times, as have flax-spinning and weaving in most flax-growing countries. In Hindostan in the East, and America in the West, cotton seems to have been spun and woven as far back as we have any records of these two countries, in both of which the cotton-plant seems to be a native. Egypt is remarkable as showing the antiquity of flax-spinning and weaving in its native country.

The processes in all these countries were, however, very primitive. The spinning was done chiefly by hand, between the finger and thumb, as one process preparatory to weaving is still to this day, even in our large Lancashire mills. This hand-spinning, though very slow, was very effectual, especially when, as in the case of Hindoo spinners, the sense of touch was highly developed either by native sensibility or by long practice. England could never have competed with India without her present system of machinery. The low price of Indian labour rendered any European competition hopeless, until the wonderful machines, now so common, but none a century old, enabled England to bring her coal and iron to help her to become the spinner and weaver of more than half the world.

Until the invention of the spinning-frame no goods were made entirely of cotton. All textile fabrics are made of two sets of threads interwoven; one running the long way of the cloth, called the *warp*, and the other running across it, called the *weft*. Of these two, the warp should be the stronger; and until cotton could be spun strong enough, the warp was always of linen, cotton being used for the weft only. Under the old English system of spinning by a wheel, or by a distaff, the spinner could not produce thread in sufficient quantity for the weavers, who had thus to spend a part of their time in trying to collect, from house to house, the spun threads as they wanted them; and this difficulty was increased when, in 1738, a weaver named Kay made an improvement in the weaving-loom, by which the process of weaving was much quickened. This improvement was the "fly shuttle," in which the weaver, instead of reaching out his hand to the edge of the cloth every time he had to pass the weft across it, moved the shuttle by means of a double string acting close to his hand in the centre of the loom, by which he could move even two shuttles from right to left and from left to right. Before this invention, it had been necessary, in weaving wide cloth, to have two men, one at either side of the loom.

In the spinning-frame, patented first by Wyatt in 1738, and afterwards by Arkwright in 1768, the cotton (after being opened and cleaned, having its fibres combed out all in one direction, and being carded into rovings) is passed between two pairs of rollers, and is then twisted into yarn by revolving spindles.

The machinery of this "water-twist" machine of Arkwright is somewhat complicated, but its principle may be understood by reference to Fig. 1, showing that portion of it which is directly concerned in the spinning process. The roving was wound up on a large bobbin, and passed from this between two pairs of rollers, B, the second pair of which revolved much faster than the first, by which the roving was made longer and thinner. It then passed to the spindle, D, round which it was wound by the flyer, C, which also, by its revolutions, gave it the necessary twist or spinning. The roving of loose cotton was thus transferred from the bobbin, A, to the spindle, D, being spun during the journey by the flyer, C. The machine was moved by water-power, from which the cotton so spun derived its name of "water-twist." The roving was fixed at the top of the framework, and the spindle and flyer at the lower part of the front; but all the framework and the roving apparatus is removed in the engraving, to make it more simple and more easily understood. The number of spindles was at first some four or six, but was afterwards much increased.

Very nearly at the same time, in 1767, Hargreaves invented another spinning machine, called the spinning-jenny (see Fig. 2), in which a number of reels containing rovings to be spun were placed side by side, and the rovings spun by revolving spindles, without the intervention of rollers; the necessary lengthening of them being attained by a travelling clamp, which rolled backwards and forwards on the framework of the machine.

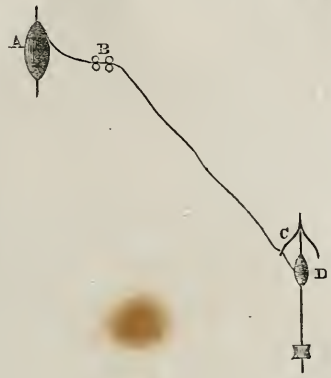

FIG. 1.—PRINCIPLE OF ARKWRIGHT'S SPINNING-FRAME,

In which the rovings passed from the bobbin, A, to the spindle, D. The rollers, B, stretch the rovings, while the flyer, C, revolving round, D, both twists them and winds them on the spindle, D.

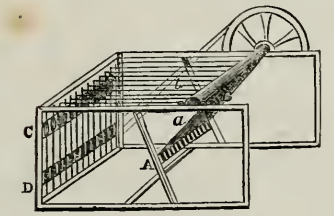

FIG. 2.—OUTLINE OF HARGREAVES' SPINNING-MACHINE.

The rovings pass from the bobbins, A, through the clamp, B, to the spindles, C. The clamp, B, by travelling to and from the spindles, stretches the rovings, while the spindles, C, by revolving, twist the rovings, b, and also wind them up.

In this machine, the rovings to be spun were wound upon bobbins, of which a row was placed side by side in the framework of the "jenny." The rovings passed from the bobbins, A, through the clamp, B, and fastened to the spindles, C. The clamp, B, was then drawn about half way back from the spindles, C, and tightened, so that no more of the rovings could pass through from the bobbins, A. By drawing back the clamp, B, still farther from the spindles, C, the length of roving was stretched longer and thinner; while at the same time, by turning the wheel, which was connected by a band with the reels, D, the spindles were made to revolve rapidly, by which the rovings were twisted into threads. When sufficiently twisted, the clamp, B, was slowly pushed towards the spindles, and the spun threads were wound on the spindles. The clamp was then loosened, more of the rovings drawn through it, and the spinning and winding repeated until the whole of the rovings were spun into thread and wound on the spindles.

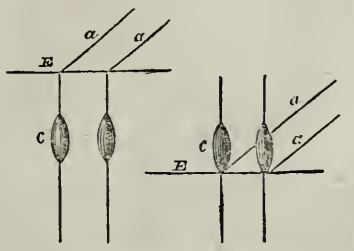

FIG. 3.

Showing how the wire, E, raises and lowers the rovings, to enable the revolving spindles to first spin and then wind them.

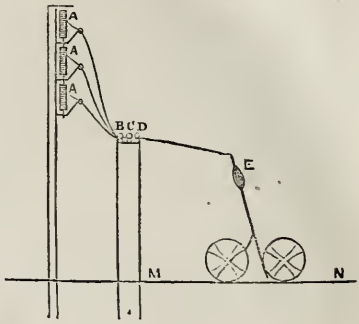

FIG. 4,

Showing the principle of the mule-spinner. The rovings pass from the bobbins, A, to the spindles, E, being spun by the revolutions of the spindles when rolling from M N, and wound by the reverse motion from N to M.

It is especially worthy of notice by what a simple contrivance the same revolving motion of the spindles first spins the thread, and then winds it on the spindles. The same contrivance is still in use in the most modern form of mule-spinner. When being spun, the roving is kept by a wire, E (see Fig. 3), up to the top of the spindle, C, so that the turning round of the spindle only spins the thread; and instead of winding round the spindle, it slips every time over the top of it: but when it is spun, and requires to be wound up, the wire, E, is depressed to the bottom, and then the movement of the spindles ceases to spin the thread and begins to wind it; and by the time the whole spun length is wound, the wire, by gradually rising, has both kept the thread evenly wound over the whole length of the spindle, and brought it once more to the top of it, ready to begin spinning again.

Thus there were two different kinds of spinning-machines brought into operation at about the same time, the one Wyatt's, or Arkwright's, spinning by rollers, and producing a firm, hard thread, fit for warp; and the other, Hargreaves', spinning a finer, softer thread, fit for weft. And now English weavers began to make fabrics entirely of cotton, owing to the improvement in the strength of the yarn enabling it to be used for warp as well as for weft.

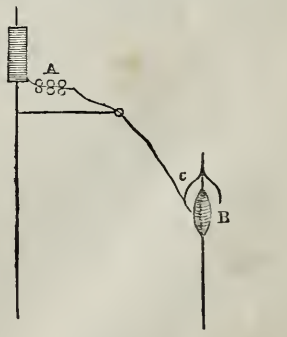

FIG. 5.

Principle of the throstle-spinner, by which the roving, after being stretched by passing through rollers, is spun by flyer, C, which also winds it on spindle, B.

The next improvement in spinning was the invention of the mule-jenny, or mule-spinner, the machine now in general use. This was the invention of Samuel Crompton, a weaver, who

completed it in 1779, after several years' labour. This combines the roller-action of Arkwright's spinning-frame with the spindle-action of Hargreaves' spinning-jenny. The rovings are first passed through rollers, as in the "frame," and then twisted by revolving spindles, as in the "jenny;" except that in the "mule," instead of a movable clamp, the spindles themselves move backwards and forwards, first drawing out and spinning the threads, and then, by the reverse movement, rolling the threads on the spindles.

In a mule-spinner (see Fig. 4) we have the rollers, B C D, moving with different degrees of velocity, and the spindles, E, moving backwards and forwards between M to N. From this combination of the peculiarities of the "frame" and the "jenny" it derives its name of the "mule" spinner.

There is still another spinning-machine, called a "throstle" spinner (see Fig. 5), specially adapted for spinning hard, strong threads, fit for warp.

In this system of spinning, which is not very different in principle from Arkwright's original spinning-frame, the roving passes through the rollers, A, revolving with different velocities, and is then spun by the flyer, C, which, at the same time, winds it on the spindle, B, round which it revolves with great rapidity.

The machines now described were invented more especially for spinning cotton, but they are as applicable to spin flax or wool. Flax is more generally spun by the throstle system, and wool by the mule, and slight differences have to be made in the construction to suit the fibres of each material. It is especially necessary, in all spinning by rollers, that the distance between two pairs of rollers, revolving with different velocities, should not be so little that both pairs can have hold of any one fibre at the same time, for if so, the fibres will be torn in two, and the rovings broken; nor yet too far apart, or the rovings are pretty sure to come in two between them. In flax-spinning the rovings have to be kept damp, to make them more pliable; in wool-spinning the rovings are stretched more than in cotton, on account of the wool-fibres being more elastic.

The process in the manufacture of silk, which corresponds to spinning in the manufacture of cotton, is, properly speaking, called "throwing," though the term "spinning" is sometimes improperly, applied to it. Spinning means the making of one long thread by the twisting together of many short ones; but in silk the only short fibres are pieces left in the working up of the long threads in which silk is spun by the silk-worm. These long threads are put two or more together, and twisted together by machinery, very much like that used for throstle spinning in cotton and flax; that is, it is twisted by the action of flyers rapidly revolving round the spindles on which the silk is to be wound. This process is called "silk-throwing," while the using up of the waste short pieces left, by spinning them into long silk threads, is called silk-spinning.

Club Refreshments.

BY THE REV. H. SOLLY.

It is very important, nay necessary, to bear in mind the distinction between having drink at one's meals and mere tippling for amusement and company's sake at other times. Where there is a dining or supper room in a club, I quite admit that those who wish it should have a glass of beer with their meals, and that they might fairly and safely be accommodated with it without the dangers above referred to arising, provided the rule were strictly adhered to of drawing beer only for those who were having a meal. I am also bound to admit that clubs in the Iron districts, where the men are engaged all day long in work causing excessive thirst, may be in an exceptional condition compared with other such societies; but I confess that, if it should be resolved at the approaching Conference at Oldbury to recommend the introduction of beer into the clubs, I should be far more inclined to yield to the adoption of what one of the delegates called the plan of "Co-operative public-houses" managed by the men themselves, in lieu of the Working Men's Clubs, if both could not be maintained, rather than let the *clubs* become places for the general sale of beer. The Co-operative plan might gradually break the habit of excessive tippling among the older men, and they, or, at all events, the younger men, after a time, might find that they could be just as happy without any beer at all, except what they take at home or at their meals elsewhere; and, therefore, a great deal happier and better in every respect. They would then, probably, form and support a club and institute, with all its higher enjoyments and advantages. If, however, beer should anywhere be introduced I would strongly recommend that it should be drunk only at the bar of the club (unless taken with a meal), and that on no account it should be allowed to be taken into any of the rooms of the club, except the eating-room.

As to what experience says in this matter, let me again quote:—

If, however, these arguments are not convincing, let us see what experience says. I know of only seven clubs where beer has been regularly allowed on the premises. In two of these great disorders, after a little while, prevailed. Dancing, also, was introduced, improper characters obtained admission, and the clubs broke up. In the third there was so little beer drunk that it became sour long before the cask was finished, and proved to be too expensive a luxury. In the fourth, the same process is probably taking place, as the president, a clergyman, informs me that the consumption is only at the rate of half-a-pint per man per week. In the remaining three there are dining-rooms, which, as I said above, puts the matter on quite a different footing. In short, I believe we may say that, if the members are generally steady men, there will be so little drunk that it will soon be nasty enough both to prevent excess and to ensure a loss; while, if they are not steady, their friends need not trouble themselves to form a club for them to drink in, as there are a few beershops in most towns which will probably answer the purpose. Moreover, those men who want their beer at the club, for the sake of attracting and at the risk of injuring whom beer is introduced, and who can't enjoy an hour or two's chat, reading, smoking, or recreation without it, want the *joviality* of the public-house as well as its beer. They will either get this at the club or go back to the tap-room, none the better for having joined the club, but leaving *it* considerably the worse for their brief sojourn there. If they remain, there will be something else wanted before long besides the beer, and that is "a penn'oth of summut short" to put into it. Gin is pretty sure, after a while, to knock for admission where tipplers are patronising beer. It may also be well to consider* that a man who has been drinking rather freely at "a public" may afterwards come to the club, get a finishing pint, make a row, and go home drunk, for which catastrophe, of course, the club would bear the blame; more harm being done to the general character of the club by that one disturbance than mouths of quiet usefulness on its part might suffice to overcome.

Since the above was written, I am bound to state that the Rev. J. Allen, President of the Leicester Club, called upon me, and told me that, so far, the experiment of introducing beer there has been quite successful. Also, that the secretary of the Handsworth Club writes that ale is now allowed there, but limited to two glasses per man each night; *but*, in both cases, the experiment has only just commenced.

I may add to the above the following note, which I received one evening previous to addressing a club in the Midland districts, from which beer was excluded by the rules. It has since been closed:—

Dear Sir,—Will you kindly introduce into your remarks this evening the desirability of members of the club abstaining from introducing into the club intoxicating drinks? Last evening, a party of young men were drinking, making mock sermons, and otherwise conducting themselves in a most disgraceful and disreputable manner. Now, sir, while I, as a member, would like to see all attending happy, I should not like to see this Working Men's Club degenerate into little better than the taverns and singing-saloons which tend to disgrace and degrade all who attend such places. A word spoken in season may do good, and prevent a repetition of such a scene as I witnessed last evening.—I remain, Rev. Sir, yours obediently, A Member.

Allow me to conclude with the observations addressed to the gentleman at Leicester, on the occasion above referred to:—

The plain fact, in short, is that where beer is to be got a class of persons (of both sexes) are attracted, who, by their fault or misfortune, are just the people to damage an institution like a Working Men's Club. It may be taken by many of the members for months without mischief; but by degrees, weaker men suffer, worse men watch their opportunities, and that which without the beer would have been a refuge for some, an elevating influence to others, and a source of rational enjoyment to all, becomes a snare and a nuisance, which good citizens wish they had never promoted, and with disappointment and shame bury out of the way.

These, then, are among the chief arguments that have led so many thousands of the leading supporters of clubs *among working men* to exclude the beer; and I cannot but earnestly hope the members of the forthcoming Conference, as well as of all Clubs in the country, may take that view of the question.

With a sincere prayer that they may be guided to a right conclusion, I leave the matter in better hands than mine.

* Confirming Archdeacon Atterton's remark.

THE MOTHER'S IDOL BROKEN.

There is her nest where in beauty smiled
Our Babe, as we leaned above;
And her pleading face asked for the tenderest place
In all our world of love.
Very silent and empty now! yet we feel
It rock; and a tiny footfall
Comes over the floor in the thrilling night-hush,
And our hearts leap up for the call
Of our puir wee lammie dead and gone;
Our bonnie wee lammie dead and gone.

Last night, with hands to cracking clasp't
In the furnace-fire of my heart,
Sitting, I saw the dead world
All into spirit-life start
At the mystic touch of the white Moonlight.
My spirit arose likewise,
And wandered away to the Graveyard,
Where, a jewel in Death's hand, lies
Our puir wee lammie dead and gone;
Our bonnie wee lammie dead and gone.

Slowly, slowly rose the dead,
All in their robes of white!
Weirdly, weirdly rose the dead,
All in the silent night!
Like lilies for God, from the dark grave-bed,
They grew in a glory-rain;
And the crowned Darling of Heaven, at the head
Of all that glorified train,
Was our puir wee lammie dead and gone;
Our bonnie wee lammie dead and gone.

In my dream I stood at the death-door dark,
Alone and tremblingly,
Till a Shining One came in a crescent bark,
Moonlike, o'er a purple sea.
She smiled as to say she knew the way,
And at some secret sign,
A memory of the old life stirred,
And I knew that Angel mine!
Our puir wee lammie dead and gone;
Our bonnie wee lammie dead and gone.

—*From "Craigcrook Castle," by Gerald Massey.*

THE CAMBRIDGE FREE LIBRARY.

This useful institution is situate under the Guildhall, and is most extensively patronised by those for whose use it was principally intended. The Library Committee consists one-half of members of the Corporation, and the other half of inhabitants of the town and university. This plan has been productive of the greatest benefit to the institution. The annual allowance from the Borough Fund is £300 (or not quite a ¾d. rate), and no rent is charged for the use of the rooms. The rooms occupied are spacious and well lighted, the size of the reading-room being 45 feet by 42, and that of the library 42 by 25. There are separate entrances to the library and reading-room. The reading-room is open from 11 a.m. till 10 p.m. daily, and is supplied by 13 daily and 15 weekly newspapers, 35 weekly, fortnightly, monthly, and quarterly magazines. In addition there are 370 volumes of books of reference and other works of general interest kept in the room for readers to obtain readily as they are required. The library consists of nearly 12,000 volumes, about two-thirds of which have been presented. The late Prince Consort was a donor of 140 volumes, of the value of £50; and the late Dr. Whewell was one of its first contributors. The principal donor has been Mr. James Reynolds, who has contributed nearly 2,600 volumes, and next to him may be mentioned Mr. H. T. Hall (a member of the Council), who has presented about 650 volumes. Last year, G. E. Foster, Esq., contributed 134 volumes, of the value of £50. The issue of books has continued to increase from year to year, but this year there will be a decrease, resulting from the fact that no catalogues of the new books that have been added to the library have this year been published. Last year the circulation was 44,435 volumes. The lending library is open daily, from 11 a.m. till 2 p.m., and from 6 till 9 p.m. One feature of the Cambridge Free Library is the collection of books, pamphlets, and other documents having reference to local affairs. The collection of old prints and views of the colleges and public buildings are many of them rare, some of which are framed, and cover the walls of the reading-room, and prove a source of much interest, as also do the portraits of local celebrities.

THE VINE.

IN Miss Elizabeth Twining's interesting and instructive work, "The Plant World," we find the following account of the vine :—

"The grape-vine ranks highest in the class of fruit-trees; it was among the earliest known to man, and the art of making wine was one of the first discoveries of the uses of those trees yielding fruit which were given to him 'upon the face of all the earth.' The vine, like some other plants we have studied, has a certain region of the world marked out for it. The tropics will not do for it, neither the cool climates of countries that are situated beyond the fiftieth degree of latitude on the north; therefore, the vine cannot grow in the open air, except in peculiarly favourable spots or sheltered places, in our country, neither in the north of France nor Germany. In entering France on the north, we see no extensive vineyards until we have travelled beyond Paris southward, or into the warm provinces to the east in the old territories of Champagne and Lorraine. The vine flourishes also in the north of Africa nearly in the same tract of temperature as that of maize. But in Central Africa no vines will be found; it is too hot and scorching throughout the tropics of that continent; when the climate cools a little beyond that limit at the Cape of Good Hope, the vine is again cultivated, and much good wine is made and sent to other countries as Cape wine. The vine grows wild about the southern shores of the Caspian Sea at the present time, just in that part of Asia which was first inhabited by the human race. From thence it followed the course of population and civilisation; wherever man progressed and cultivated land, there vineyards were planted.

"It is very curious to trace the advance of the vine; from Asia it was brought into Greece—a country famed for the wisdom and learning of its people for many centuries. Thence it was taken to Sicily, and cultivated there in great perfection. As the Romans took possession of new countries in Europe beyond their own Italy, they introduced the art of planting vineyards, and those which now cover the sloping hills on the banks of the Rhine and the Moselle in Germany, are said to have been originally planted by the Romans when they were established in that country. In ancient records of the time when the Saxons became rulers in this land, there are accounts of vineyards, which seem to prove that the Romans had, in the course of their 400 years of dominion, taught the people the way to plant vines and to make wine. At that time the climate of England was much warmer than it is now, and the cultivation gradually diminished after the produce of more southern countries increased sufficiently to supply us. When the farmers learned how to cultivate their land with various crops, and the monasteries were broken up, it was found better to grow corn than vines. About 300 years ago only a few vineyards in favourable situations in the southern counties were still to be seen. It was not until the beginning of the last century that artificial means were adopted to ripen grapes; the vines were then planted and trained against a wall, on the other side of which fires were made. About 100 years ago the first houses covered with glass were made for vines. In these hothouses grapes ripen well, and are thought to be as rich and well-flavoured as those which grow in the open air in more natural heat. It is probable, however, that they do not acquire some of their best properties so fully.

"We have already observed the tract of the earth's surface on which palms and also corn flourish best; you can now trace out on the map the region of vines. It spreads over nearly 2,000 miles in breadth on the north of the equator, including the north of Africa and south Europe. The best part of this region is Spain and Portugal, where the choicest kinds of grapes ripen well, and are made into excellent wine. Even there the climate varies in its suitability, and those grapes which grow in the southern provinces are chiefly fit to be dried as raisins in the sun. In some districts the grapes must be steeped in a preparation before they are exposed to the sun for drying. This causes some difference in the quality, and is the reason why Malaga raisins are preferred for some purposes and those of Valencia for others.

"Vines have a trailing stem that is unable to support itself without some kind of prop, but if that be given, they climb over it readily, clinging on firmly by means of the curling tendrils on the branches. The most ancient manner of training vines was upon other trees, and this is still preserved in Italy. One of the striking parts of the scene to a traveller descending the Alps into the plains of Lombardy, is the sight of vines trained to peach-trees in the open fields, their branches forming festoons from one tree to another, laden with purple grapes, if it chance to be in autumn.

"In some hot countries of the East, the primitive custom of planting vines by a well, and training them over a trellis-frame, is still maintained, and the owner and his family repose and refresh themselves under the pleasant shade. This explains the similitude used by the patriarch Jacob when, blessing his sons, he likened Joseph to 'a fruitful bough by a well.' When the fruit is ripe, it is gathered into carts and taken home. The very choicest wine—as that of Tokay in Hungary—is the first dropping of the rich juice before the grapes have been pressed. The ancient treading of the wine-press is referred to so often in the Bible, that we know it must have been a national custom. It still remains the common way of obtaining the juice in many Eastern countries, and in Italy it is the usual practice, although in some vine districts a kind of press is used. In Spain, goatskins are dried and sewed up into bags to keep wine in; which recalls to mind the illustration used by Christ to his disciples, about putting 'new wine into new bottles,' lest the wine be spilled. The skins were liable to crack and burst when old, but a glass bottle remains secure until it be accidently broken.

"Concerning the region of the vine in the East Indies, we must remark that it does not extend in the same latitude as in Europe, on account of the different kind of temperature. The French, when they took possession of Pondicherry on the east coast of Coromandel, in twelve degrees of latitude, established vineyards there. In the north-west provinces of Asia the vine thrives well, but, in general, the grapes do not make good wine, nor can they be dried as raisins. In some parts of the Himalaya, grapes ripen at an elevation of 9,000, or even 10,000 feet, and are converted into wine and raisins. The vines of the luxuriant valley of Cashmere find a suitable temperature at 5,500 feet. In China and Java, also, vines are cultivated. In the New World, there is, likewise, a region of vines gradually extending, according to the progress of civilisation and the art of culture. On the Andes, vines are generally found to thrive where the maize can grow, up to an elevation of 7,000 feet above the plains. From America vines have been transported to the Sandwich and other isles of the Pacific Ocean, whilst from England they have been carried to, and successfully planted in, Australia. All this seems to be an indication of that future time dawning, which the prophet foresaw 2,560 years ago, when peace shall prevail over the earth; when spears shall be beaten into pruning-hooks, and 'nation shall not lift up a sword against nation, but they shall sit every man under his vine.' Young vine plants begin to yield fruit at two years, and are said to improve in quality until fifty years old. Their duration is extreme; for in France and Italy there are now vineyards in existence, which are known to have been in full vigour for at least three centuries.

"The learned naturalist Pliny, of whom I have before told you, mentions a vine which he had seen when it was 600 years old. The stem attains a considerable size when all circumstances favour its growth. It is said in an ancient book that two men could not embrace one, which far surpasses the usual size. When the wood is old and compact, furniture is sometimes made of it, and much esteemed for its durability.

"The small black grape from the vine of Ascalon and Zante, formerly chiefly cultivated in Corinth, has no seeds: this kind is dried for use, and is well known in this country as dried *currants*. You can now easily perceive they cannot be real currants, such as we have on currant bushes in our gardens; because you learned in the chapter on *fruits* that they have the remains of the withered blossom on the top of the berry, but the grape is placed entirely above the flower, therefore is smooth, and shows no trace of calyx or petals. A larger white grape, also without seeds, is, when dried, the kind we call Sultana raisins. Even this one trifling production of the vine tribe is become an important article of commerce in the present populous state of the world. Upwards of 100,000 hundredweight are sent here annually from Spain; a still larger quantity come from Turkey, and a considerable portion, also, from Italy. Raisins are used in various ways for cakes of all sorts and for puddings. Wine is also prepared from raisins as well as from grapes in their fresh state, and is of excellent quality, preserving its strength and goodness for many years. The fruit is almost equally nourishing and refreshing in its dried state, as when fresh gathered from the vine. There is very early record of raisins being eaten as food, and affording really strengthening sustenance. When David was at war with the Amalekites, the Egyptian who was found fainting in the field was revived by the food given him, part of which was 'two clusters of raisins.' Then we read of a present being made to David, one portion of it being 100 bunches of raisins. And when, by general consent, David was made king at Hebron, and 'there was joy in Israel,' amongst the things which composed the gifts for the feast, were 'bunches of raisins.'

"The seeds of grapes contain a very pure oil, of the same nature as that of the olive. The leaves and tendrils have a peculiar astringent taste, not at all perceptible in the ripe fruit, which has completed the work which the leaves begin, of converting all the juices of the plant to the formation and perfection of the fruit."

GUTTA-PERCHA CEMENT.—A good gutta-percha cement is made by dissolving gutta-percha in chloroform in quantity to make a fluid of honey-like consistence. When spread it will dry in a few moments. Heat the surfaces at a fire or gas flame until softened, and apply them together. Small patches of leather can be thus cemented on boots, &c., so as almost to defy detection, and some shoemakers employ it with great success for this purpose. It is waterproof, and will answer almost anywhere unless exposed to heat, which softens it.

Facts and Memoranda.

SEVEN hundred thousand tons of soda, worth about five millions sterling, are annually consumed in England.

M. CHEVREUL states that mutton tallow contains twenty-nine separate substances, amongst which are a number of acids. The majority are united with potash, some with ammonia, lime, magnesia, oxides of iron, manganese, and copper.

THE Council of the Central Cottage Improvement Society having offered a premium for the best design for a detached cottage for labourers, have received upwards of 100 designs, which, in a few days, will be exhibited at the rooms of the Society of Arts, Adelphi.

HOW TO PRODUCE COLD.—Dr. Phipson has found that when 207 parts of lead, 118 of tin, 284 of bismuth, and 1,617 of mercury, are mixed together, the air being at the temperature of + 17° Centigrade, the temperature of the mixture falls to — 10° Centigrade. The mercury in such a mixture being readily recoverable for use over again by distillation, Dr. Phipson is of opinion that the production of cold by this method is susceptible of numerous useful applications.

A MONSTER BRIDGE.—The monster bridge, the largest constructed on the Lewisham and Tunbridge line of railway, and which is built over the road leading from Green Street Green to the above village, contains nearly three millions of bricks. That quantity placed lengthways would reach from Orpington, in Kent, to the city of Glasgow, in Scotland, a distance, by the old turnpike road, of 426 miles; or the same quantity of bricks would pave fifteen acres fifty-nine perches of pasture land.

AN ENDURING BEAM.—Some days ago, in demolishing a portion of the Paris *Cité* for the site of the Hôtel-Dieu, the workmen discovered an oaken beam in one of the most ancient houses, which had a section of 1·36 mètre. There was very little sign of decay, and on one of the sides was the following inscription:—"I was placed here in the year 1450, and was 600 years old when I was taken from the forest of Bovray, of which the Bois de Boulogne is a small portion." Nearly a contemporary of Charlemagne!

CARBOLIC ACID.—The antiseptic properties of carbolic acid are supposed by some to have been only recently discovered; but the fact is, that, from time immemorial, carbolic acid, creosote, or bodies containing them, have been used as antiseptics. Passages in Pliny, read by the light of chemical science, show that the Egyptians used for embalming their mummies a compound made from pitch, which must have contained large quantities of creosote. Carbolic acid is the active agent in tar, which, either in its ordinary state or burnt as a fumigator, has always held high rank amongst disinfectants.

A NOTEWORTHY fact in connection with the present difficulties on the Continent is, that all countries likely to be engaged in the war have increased their supply of coal to an enormous extent. Italy has been importing coal lately in such large quantities that the freights on the east coast have greatly advanced, and vessels can scarcely take the coal with sufficient rapidity. This supply is for the Italian navy. Austria has also increased her supply of coal very largely, although it would appear that her navy is not to be actively engaged in acts of aggression upon Italian merchantmen. Prussia has also largely increased her supply, and the same remark will apply to Russia and France.

PATENT SAFETY GAS-TAP.—The absence of a safeguard to prevent the accidental turning on of the tap, which often arises by an undesigned knock whilst dusting or cleaning the gas candelabra or other fittings, causes many fires, explosions, and other disastrous accidents; as also does the want of a protection against children or others from improperly turning on the gas. A patent safety gas-tap has been invented which renders the accidental turning of the T piece impossible, by means of a very simple and cheap addition to the ordinary gas-tap. A small spring is so arranged, that by the action of the fingers in turning the T piece or plug, it is readily depressed, and then freely allows the gas to be turned on, whereas it effectually secures the gas-tap from being opened by any accidental cause. If not liable to get out of order—and there seems little fear of that—this invention must greatly tend to ensure safety in the use of gas. It can be applied, at a very trifling cost, to existing gas-fittings, and is readily applicable to the ordinary gas-taps.

A NEW LIGHT.—Professor Carelvaris, of Genoa, has invented a new light, called the Carlevaris light, and the experiments made at the close of last month in the theatre of the Technical Institution were attended with great success and loudly applauded. This light is an oxy-hydro-magnesian flame, and is obtained by placing in the flame of a mixture of hydrogen, or coal gas, with air or oxygen, spongy magnesia, a substance of very small cost. The flame is white, rich in actinic force, fixed, and developing less heat than other lights. The expense is very trifling, a light equal to four wax candles only costing two-tenths of a penny per hour. A new trial also took place in the lantern of the Genoa lighthouse. It proved that this light was superior to that of the oil-lamps representing an illuminating power of twenty-three Carcel lamps, and yet the cost was only 3d. per hour.

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JUNE 23, 1866.

Erratum.—The author of the article headed "Co-operation and the Journeymen Bakers," in No. 23, has called our attention to an error of the press, by which a passage in it is left open to a construction conveying an imputation on the journeymen bakers of Ireland. We hasten to acknowledge the mistake, as nothing could be farther from our intention than to reflect on so orderly a body as we have every reason to believe them to be.

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A Penny Series.

We believe that the Working Man, the first volume of which will be concluded in our next number, has been the first periodical established with the double purpose of supplying instruction to the artisan and information to the citizen. During the progress of this Journal no pains have been spared, either as respects illustrations or matter, to make it an acceptable representative of the useful classes: and we are gratified to find that the general opinion of the public is appreciative of these endeavours; and only one wish is expressed—namely, that as respects price—that the utility of this Journal could be extended to a yet larger circle of readers; and we have resolved to meet this wish by making the price of the Working Man, on the issue of No. 1 of our second volume, One Penny. We have reason to believe that we may rely upon the interest of our readers to promote the success of the undertaking.

Not only will the illustrations and features of special approval be continued, but we hope to add others, which shall have further value. Quite apart from party politics, we shall discuss political as well as social questions, from a national point of view, and with regard to their bearing upon the large class of whose interests the Working Man claims to be the public representative. We take the title Working Man in that nobler sense expressed by Carlyle, in his memorable phrase, "All labour is sacred." We include under that phrase all those who gain their income by active exertion in every pursuit in life.

Our desire is to create a paper which shall have not only a weekly but also a permanent interest to working men—one that shall be necessary not only to the workshop, but also to the families of the industrious classes; welcome to the news-room, and to all who wish to see the views of working men on industrial, social, and public questions.

Lodging-House Legislation.

It is a question often raised, what amount of air a person requires to breathe and continue well. Of course, it depends upon many circumstances—health, age, and exercise influence the degree of want felt for it. Incidental light is thrown upon the subject in two quarters very remote from each other, whose proceedings have in one case come, and in the other will come, before the public.

At the official inquiry into the condition of the Strand Union Infirmary, the doctor told the commissioner that he wanted 1,000 feet of air for each patient, being half the allowance at the Fever Hospital and day-rooms for the infirm. From which we learn that 2,000 feet are deemed necessary at these places for diseased and aged persons.

At a conference of chairmen, vice-chairmen, and other officers of local boards of Newcastle-on-Tyne and neighbouring towns, held at Lieutenant-Colonel Potter's offices, Willington Quay, a resolution was proposed that Parliament should be asked to enact that no person shall be permitted to take lodgers unless his house contains 250 cubic feet for every adult member of the landlord's family, and 125 cubic feet for each member of the landlord's family under eight; and after such amount, 300 cubic feet for each adult lodger, and 150 feet for every lodger under eight; and that a family shall be held to consist only of the landlord's family in the first degree, as a father, mother, and children, or a family consisting of brothers and sisters exclusively; all other persons being considered as lodgers.

No doubt this proposed enactment points to the minimum quantity of air necessary to prevent overcrowding and the generation of fevers. Such a rule would prevent ignorant or needy landlords from taking into their houses more persons than could sleep with a decent chance of health. The number of persons whom any landlord would be permitted to house, would be determined by his sleeping-space, measured in cubic feet. This is, no doubt, a merciful regulation, which those local Boards seek to enforce. But it naturally occurs to one, that when provision is thus made for the quantity of air, some obligation ought to be imposed upon the landlord to provide for its change. Air, to be breathable, must be fresh. There is no enactment even thought of as yet to compel ventilation. This omission, at present, must be tolerated. It is something to see Parliamentary attention directed to securing the quantity of air which every human being ought to be secure of finding in every lodging-house. Provisions for ventilation will follow, doubtless, in due course.

Now and then an ill-timed strike takes place. Dictated by passion as often as by prudence, a strike will often be ill-advised. Such a one appears to have occurred at Ottery St. Mary, in Devonshire, according to newspaper reports. We have not as yet seen the men's case stated. The side which has been stated represents that a portion of the town has been destroyed by fire, and that a public subscription of £3,000 has been generously made to aid the poor people burnt out. At this juncture of affairs the workmen there turn out for an advance of wages, and advertise a warning that no carpenters or bricklayers need apply there, as the resident operatives are out on strike. We have no doubt these working men would be as ready as any other classes to remedy a public calamity. Their strike may be based on a conviction that the contractors are profiting by the subscriptions supplied, and think themselves entitled to share in them. We should think they must have some palliating reason. Unless they have a very strong one, they must be held to be open to grave censure. Under any conceivable circumstances, it seems an ill-timed strike.

The discussions on coal which have of late occupied the attention of the House of Commons, are likely to affect working men sooner than was to be anticipated. We do not expect any sudden scarcity, but there will be a rise in price, and that before long, unless the question assumes a better aspect. Very experienced coal-owners really think, with Sir William Armstrong, that scarcity will occur early; others believe with Mr. Hussey Vivian—who made a dull, subterranean speech the other night in Parliament upon the subject—that we have more coal than is imagined; that it can be got at a greater depth than is supposed, and that we may economise its use, as Sir William Armstrong proved, saving seven-tenths of it, if we remember the proportion rightly. In the meantime the Budget speech of Mr. Gladstone, in which he referred to the probable day of scarcity, has had its effect on coal-mine proprietors. Two gentlemen were mentioned last week in conversation at the House of Commons by two northern members, who had agreed to let land for mining purposes, at a certain royalty—that is, a tax of so much per ton, to be paid by the getter—and now they demand a double royalty. The effect of this will be that the price of coal will be raised, and the poor consumer will feel the effects of the coal debates; and coal enters into the cost of manufactures so largely, that many articles of use will be raised too, if ever the price of coal is substantially increased.

A gentleman who has written himself into reputation, and whose reputation is likely to depend more on his pen than his tongue—we mean Mr. Kinglake—made a speech in Parliament on Tuesday night, on the impending war. In the course of it he represented that Italy was gratuitously seeking occasion of war with Austria, and that, "in the event of a war between Austria and Italy, it would be a war without a quarrel." This is disguised language, seeing that Italy has had deadly cause of "quarrel" with Austria from the day in which it began its brutal rule in Venetia. The same speaker afterwards spoke of Venetia as being "rather more Italian than Austrian." "Rather more!" This is a wonderful phrase in an assembly which piques itself on language of exact truth. Mr. Howells, an American consul, who was occupied with official duties in Venice for three years, has just published the results of his experience. He states that so intense is the Venetian hatred of the Austrian, that a predecessor of his who spoke German was always distrusted; that an Italian man or woman who speaks to an Austrian, is shunned by

their own countrymen and women. No Italian lady will suffer an Austrian, nor any one who knows an Austrian, to enter her house. The Italians will not meet in the same *café* to eat, nor in the same church to worship, with Austrians. They will not stand in the same square where Austrians are, even to hear music, of which Italians are so fond. They will not go to any theatre where an Austrian enters, and they have for long years abandoned their national festivals, rather than Austrians shall share the pleasure, or even witness them in moments when they may seem to forget their hatred. This is what Mr. Kinglake describes as being "rather more" Italian than Austrian in sentiment.

DIPLOMACY has broken down under Bismarck. The enterprising Count, who has a European reputation for political intrepidity, has just addressed a despatch to the Prussian representatives abroad remarkable for its employment of language the opposite of that for which diplomacy was invented. Not content with dissenting from Austria, the Count speaks of the Emperor as having a "theoretical love of peace," and an actual "craving for war which dominates over him." This language might pass for a vigorous description of Imperial psychology, but the enterprising diplomatist takes upon himself to say that "expressions of influential Austrian statesmen and councillors of the Emperor have been reported to the King from an authentic source, which leave no doubt that the Imperial Ministers desire war at any price, partly in the hope of successes in the field, partly to tide over domestic difficulties—nay, even with the expressed intention of assisting the Austrian finances by Prussian contributions or by an 'honourable' bankruptcy." Diplomatists profess to confine themselves to statements made in official documents duly accredited; but here the Count brings in "expressions" of irresponsible individuals who speak unofficially. Anything can be proved, and anybody may be assailed, on this plan. Found accusations on all a man's friends or acquaintances may say, and no one would be safe, and quarrels would never end. The Count makes use of these private "expressions" to found his charge, which no official document would enable him to do, namely, that the Imperial Ministers of Austria "desire war at any price"—that they seek conquest—have private ends to meet—intend plunder and bankruptcy. Such is the meaning of "hope of successes," "domestic difficulties," "assisting Austrian finances by Prussian contributions," with a view to "honourable" scheduling. Diplomacy professedly deals with facts and principles, and avoids imputation, which proves nothing, and retards and embitters everything.

WOMEN are finding their way into Parliament earlier than was expected. The other day they brought a petition to the House of Commons. Two ladies attended with it, in a cab, and presented themselves (not the cab) in the lobby of the House in search of a member to present their petition. When ladies come "lobbying," what will become of honourable members? The petition, signed by 1,500 women, was drawn with singular good sense and good taste. It set forth that it is constitutional for women to meddle with politics. A woman may reign: she is eligible to public offices. All holders of property are allowed electoral rights; why, then, should women, one part of the nation holding property, be excluded from a right presumed to be common to all? These are fair questions. Mr. J. S. Mill has moved for a return of the number of women who possess electoral qualifications—who are householders, and pay rates—but are excluded from the right of voting on the ground of their sex. Strange as it may seem, it will not be possible much longer to exclude the women who hold property and pay rates from the rights common to all other persons fulfilling only the same electoral conditions. The *Spectator* cites the proceedings of certain ladies who held a Congress in New York, and who made some absurd speeches, as an instance of the unfitness of women to partake of political power. The objection is futile. Many men are quite as absurd as any women when new to political life. When women are once permitted to take part in public affairs, they will soon learn to do so temperately and well. On this point the usually sensible *Spectator* talks very much like Lord Macaulay's fool, who held that nobody should be allowed to go into the water until he had learned to swim. Women, like men, will acquire political lessons if once allowed to enter the political school, where alone the lessons can be learned.

WHEN a murder has been committed, somebody must be hanged to keep up the credit of the police. This is an unfortunate expectation. The last mysterious London murder of Sarah Millson in Cannon Street has nearly been followed by one not mysterious, but open and yet more dreadful, because the judicial murder of an innocent man. William Smith, the Eton journeyman hatter, was charged with the murder. Idle, dissolute, and of doubtful character, all these bad qualities told against him, and gave probability to a charge also supported by his evident transactions with the murdered woman. Eton is fortunately a place where the residence of a murderer would be what the Scotch would call a "felt scandal," and William Smith's case was looked into by persons who were intelligent, or who knew persons who were, and the allegations against Smith were sifted and confuted; so that, when the jury declared him not guilty, Baron Bramwell added, "It is due to the prisoner to say that he was more than not guilty—he was innocent." The question then arises, How came the man to be put upon his trial at all? By taking the wrong man, and putting his case before the country, the real murderer was relieved of all uneasiness as to his safety. It is quite time that public prosecutors, responsible and intelligent, were appointed. How can it be expected that policemen, not over-paid, and chosen for courage and detective activity rather than judicial knowledge, can discharge properly the serious function of bringing deadly charges at will against members of the public? A person once charged is half condemned. It is a very difficult thing to get any exculpatory evidence heard. A poor man can hardly hope to escape, unless he has intelligent friends who will spend money on his behalf. Censured as the police naturally are when a murderer escapes, they feel a professional desire to hang somebody; and the temptation to do this ought to be taken out of their way. Had not William Smith had the good fortune to reside at Eton, we greatly fear he would have been hanged.

The Workmen's Exhibition Prize Medal.

WE are enabled this week to give an illustration of the prize medal which has been designed by Messrs. J. S. and A. B. Wyon for the forthcoming Metropolitan and Provincial Working Classes' Industrial Exhibition. The design is entirely original, and is in perfect keeping with the object for which the medal will be struck. The period for opening the exhibition is now definitely fixed for the 3rd of September next, and all applications for space must be sent in on or before the 30th of June. In addition to the medal, money prizes, amounting in all to about £75, have been offered by gentlemen who are desirous of encouraging workmen exhibitors, and this will no doubt have the effect of increasing the interest of the competition. It is to be hoped that the council will obtain the assistance of competent judges to award the prizes, in order to avoid the expressions of dissatisfaction which have resulted on more than one occasion from a disregard of this necessary element of management.

THE WORKMEN'S EXHIBITION MEDAL.

Our readers are already aware that one of the silver medals is to be presented to the collector of the largest sum towards the WORKING MAN LIFEBOAT FUND, subscription forms for which may be obtained on application by post to our office.

Mechanical Properties of Matter.

BY THE REV. PROFESSOR HAUGHTON, M.D., TRINITY COLLEGE, DUBLIN.

THE whole science of mechanics consists in the investigation of the three following subjects:—

I. The sources and nature of the forces employed.

II. The instruments used in applying these forces to the resistances to be overcome.

III. The nature of the resistances themselves.

We shall find it convenient to investigate these subjects in an inverse order, and shall, therefore, commence with a description of the fundamental mechanical properties of matter, on which its resistance to the application of force entirely depends.

All the bodies in nature, with the exception of oxygen, hydrogen, and nitrogen, are capable of existing in three distinct conditions, as gases, liquids, and solids; and there is reason to believe that oxygen, hydrogen, and nitrogen, which are known to us only as permanent gases, might be forced to assume the liquid and solid forms like other bodies, if we had at our disposal the requisite mechanical means for their reduction.

At a given temperature of heat, and under given conditions of mechanical pressure, a body may be a solid; if the temperature be raised, or the pressure diminished, it will become a liquid; and

under a further rise of temperature or reduction of pressure, the same body will exist as a gas or vapour. Hence it follows that in a state of nature—that is, under given conditions of atmospherical pressure and temperature—some bodies are naturally solid, as limestone, copper, &c.; others are naturally liquid, as mercury, brandy, &c.; and others naturally and permanently gaseous, as air, hydrogen, &c.; while a body such as water is, in these and higher latitudes, placed under such conditions as to temperature, that it is sometimes liquid water and sometimes solid ice.

Solids.—There is no definite or absolute quality which constitutes a solid, although they all agree in more or less resisting the intrusion of another body. We can plunge the finger without difficulty into a vessel filled with milk or water, but we cannot do so with stones, wood, metals, and ordinary solids; yet we have no difficulty in thrusting the finger into a mass of dough or mortar, which are substances belonging to the border-land between solids and liquids, and may be referred, without impropriety, to either of these classes.

Some solids are *hard* and *brittle*, as glass, marble, tempered steel, &c.; others are *soft* and *ductile*, as butter, clay, lead, gold, copper, iron, &c.; and such ductile bodies, if metallic, are also *malleable*. The ductility and malleability of some metals are of the greatest importance in the arts, and depend essentially on the power possessed by these bodies of changing their shape in an infinity of ways without rupture or breach of continuity. Silver, gold, and platinum are the metals that possess these remarkable qualities in a high degree.

The following experiment was made by Dr. Wollaston, to illustrate the extraordinary ductility of platinum. A wire of platinum $\frac{1}{700}$th of an inch in thickness, coated with silver $\frac{1}{5}$th of an inch in thickness, was drawn out as long as possible without rupture, and the coating of silver carefully removed with the aid of boiling nitric acid; it was found, on trial, that 3,000 ft. in length weighed only 1 gr., and that a single silkworm's thread possessed a thickness equal to 140 such threads of platinum. Now, as each foot contains 144 lines, and as the $\frac{1}{10}$th of a line is readily visible to the naked eye, it follows that a single grain of platinum can be divided into 4,320,000 parts, each of which is distinctly visible.

Gold is scarcely less ductile than platinum, for it has been proved that the gilding of the thread used in gold embroidery is reduced to plates of less than $\frac{1}{50000}$th of a line in thickness.

Some very interesting experiments have been recently made by M. Tresca on the behaviour of ductile solids when squeezed through various apertures, and the tendency of his results is to show that solid bodies of all kinds, when a pressure sufficiently intense is exerted upon them, flow in a manner precisely similar to liquids. The same phenomena were proved to exist for the soft as for the hard metals; for plastic substances, such as blocks of wax; for pulverulent matter; for granulated materials, such as musket-shot, and in a manner only less complete than in the case of the liquids themselves.

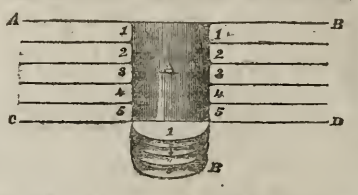
When a number of plates of lead or iron are superimposed on each other, and punched out in a direction at right angles to their surface, very interesting and important results are obtained from an examination of the "burr" forced through the plates. Let us suppose five plates superposed, as in the annexed engraving, in which A represents the cavity formed by the punch, which is flat-headed, and not allowed to pass farther than the level, C D, of the lowest plate. An examination of the "burr" B, by means of a cross section, discloses the following curious facts:—

1. The total volume of B is less than half that of A, although the density of B is not sensibly greater than that of the original plates.

2. The first and last two plates appear in the "burr" of nearly their original thickness, and the loss of substance affects principally the central plates.

3. The plates 1, 2, 3, 4, 5 in the "burr" are *continuous* with the plates 1, 2, 3, 4, 5 in the original series; so that the "burr" is formed of a number of thin shells of metal piled one over the other like so many hats.

I take the following numerical example from M. Tresca's memoir, as an illustration of the relation between the thicknesses of the plates punched through to form the complex "burr." The unit of thickness employed is the millimètre, which is 0·03937 of an English inch. Sixteen plates of lead, each 4 millimètres thick, were carefully placed over each other between two holding plates, each pierced with a hole of 20 millimètres,



to allow the punch to pass through. The force of a hydrostatic press was employed to push the punch through the entire series of sixteen lead plates, the metal of which in front of the punch formed a cylinder of 20 millimètres diameter and 64 millimètres in height. When the burr was completely pushed through, it formed a cylindrical solid of 20 millimètres diameter, but had a total height of only 31 millimètres, less than half its original height, which was 64 millimètres. On cutting the burr in two, and smoothing over the cut faces, the fifteen lines, showing the number of divisions in the primitive block, were visible; but while the first and last three plates were represented of their original thickness of 4 millimètres or rather more, the intermediate plates were considerably reduced in thickness, as may be seen from an inspection of the following table, which gives the thickness of each plate measured in the burr, together with its gain or loss above or below the original thickness of 4 millimètres of the plate from which it was derived. It will be seen from the results that a flow of lead must have taken place *from* the plates 2, 3 . . . 12, 13, into the surrounding metal.

TABLE SHOWING THE THICKNESS OF SIXTEEN PLATES OF LEAD, ORIGINALLY OF 4 MILLIMETRES EACH, PUNCHED INTO A BURR.

No. of Plate.	Thickness in Burr.	Gain or Loss of Thickness.
1	4·4 millimètres.	+ 0·4 millimètres.
2	1·6 "	— 2·4 "
3	0·5 "	— 3·5 "
4	0·2 "	— 3·8 "
5	0·4 "	— 3·6 "
6	0·3 "	— 3·7 "
7	0·5 "	— 3·5 "
8	0·7 "	— 3·3 "
9	0·7 "	— 3·3 "
10	1·2 "	— 2·8 "
11	1·8 "	— 2·2 "
12	2·8 "	— 1·2 "
13	3·2 "	— 0·8 "
14	4·0 "	0·0 "
15	4·4 "	+ 0·4 "
16	4·6 "	+ 0·6 "

THE RATE OF MECHANICS' WAGES IN ENGLAND AND ON THE CONTINENT.

An article which recently appeared in the *Engineer* on the above subject has drawn forth a reply from an "Old Reader," and a "British Workman" to boot, who writes from Grünwald Reichenberg, Bohemia, under date of June 3rd. We give the letter almost entire, feeling assured that it will be interesting to many of our readers.

"From what I can understand, the correspondent of the *Engineer* attempts to lay the whole blame of English machine-makers not being able to compete with the continental maker entirely to the high wages paid to English mechanics and the short hours they labour. In attempting to confute this statement, I will confine myself to Prussia, Saxony, and Austria. There is not the least doubt but that the individual wages paid to mechanics and other operatives on the Continent are much less and the hours of labour longer than in England; but there is no denying the fact, that where a Continental machine-maker employs two or three mechanics, an English machine-maker only requires one or two to perform the same amount of labour. Is it not a well-known fact that the human machine requires plenty of food and rest to enable it to perform its daily labour? High wages and short hours of labour enable the English mechanic to purchase better food; and, as a natural consequence, when he labours he does so with more courage, and can finish more work in the same time, than the Continental mechanic, who has less wages and longer hours of labour. Probably the correspondent of the *Engineer* can explain the reason why English machine-makers at the present day can send machines of every description for the cotton, flax, and woollen manufactures of Germany, and after carriage-duty, &c., is paid, can undersell the German-made machines from 10 to 30 per cent. Platt, Brothers, and Co., of Oldham, import cotton-spinning machinery into all parts of Germany, and the machines made by them are better and cheaper than those made in Germany, although, you must bear in mind, there is strong competition. Still, for a good, substantial, well-finished, and cheap machine, Platt, Brothers, and Co. stand A 1 on the Continent for cotton-spinning machinery. The same can be said of flax-spinning machinery made by Fairbairn, of Leeds. Derham and Co., of Blackburn, also export steam-engines and boilers to all parts of the Continent, and, after paying mechanics from £3 to £4 per week, with travelling expenses, to fit up their steam-engines and boilers, can make a better and solider job, as the phrase is, than any of their Continental competitors, and give more satisfaction, both as to power and fuel consumed, &c. Such being the case, has not the intelligent mechanic and operative of England something to be proud of? But in order that the English workman may have an idea of the Continental system as regards labour, probably it may not be out of place to state a few facts which have come under my own observation. The cotton, flax, and woollen factories, including bleaching, printing, and dyeing works, work night and day, Sundays not excepted, when the employers require it to be done. Counting-houses, warehouses, theatres, concert and ball rooms, are open, while card-playing, and gambling, and drunkenness, with all its evil consequences, are openly practised on Sunday. Such a state of things, I am sure, our intelligent English operatives would never like to see introduced into England.

"P.S.—At present most of the German states are preparing for a war, and the best mechanics and other operatives are drawn into the ranks of the different armies; and the employers' capital in a great many instances is lying idle and unremunerative for want of skilled mechanics and operatives to increase its value by labour."

HORSE CLEANING BY MACHINERY.

At the establishment of the Manchester Carriage Company, Pendleton, there is now in practical operation a novel and an ingenious system of cleaning horses by means of a steam brushing machine, invented by Mr. Haworth. The idea has evidently been derived from the revolving brush which many hairdressers have had in use, but the application of the idea to horse cleaning is of such utility, and has had so great an effect in economising labour, that it is worth a public notice, especially as we believe the machine is not in use in any other stable. In the lower stable-yard at Pendleton there is a large shed, where ten or a dozen horses can be cleaned at one time. Along the centre of the roof is a revolving shaft, from which hang several endless straps. Each strap gives motion to a horizontal pole, at one end of which is a conical brush that rotates rapidly. On an omnibus horse being brought into the stable, after his three hours' work (during which, in any kind of weather, he removes from the roads of Manchester and Salford an almost incredible quantity of dirt), he is taken to this shed, and a man applies to him the machine brush. In about half an hour the horse is thoroughly cleaned, and only the head requires finishing by hand. The cleaning effected by the machine is much more searching and effectual than the most diligent hand currying can possibly be; and to the majority of animals the greater cleanliness of their skins, as well as the improved circulation of the blood which is produced by the machine brush, appear to be acceptable. Most horses undergo the operation patiently and quietly, but in some animals timidity is produced by the rattle of the machinery. Under the old system, a man was thought to have done a fair day's work if he cleaned ten or a dozen horses, but by the machine he can clean thirty in the same time, and with considerably less bodily labour. When it is remembered that from Pendleton several hundred horses are daily sent out to work, it will be seen how important a saving in money is effected by the employment of this new process.

FIRE ENGINES.

For the re-invention of fire-engines modern society is indebted to the Germans, who gave us the different kinds of water-pump with which the Londoners of the seventeenth century in fortunate cases put a slight restraint on spreading conflagration. In 1518 the citizens of Augsburg possessed certain "instruments for fires," or "water syringes," which were mounted on wheels; but these superior contrivances do not seem to have come into general use at that date or during the next twenty years, as Agricola's "De re Metallicâ," published in 1546, takes no notice of them amongst its remarks on appliances for quenching fires. In 1582, when Maurice had completed the water-works at London Bridge, the mayor and aldermen, with great astonishment, saw him, says Stowe, "throw the water over St. Magnus' steeple, before which time no such thing was ever known in England as this raising of water;" but Maurice's achievements do not seem to have inspired mechanics with a desire to contrive more perfect machines for throwing water upon burning houses. In his old book on "Surveying," Cyprian Lucar, in 1590, describes "a type of squirt, which hath beene devised to cast much water upon a burning house, wishing a like squirt and plenty of water to be alwaies in readinesse where fire may do harme; for this kind of squirt may be made to holde a hoggeshed of water, or if

you will, a greater quantitie thereof, and may be so placed on its frame that with ease and small strength it shall be mounted, imbased or turned to any one side, right against any fixed marke, and made to squirt out the water upon that is to be quenched." Some decided advances were made in the art of building fire-engines in the next generation; for in 1634-5 John Batt, in his "Treatise on Art and Nature," describing "divers squirts and petty engines to be drawn upon wheeles from place to place, for to quench fier among buildings," presents his readers with seven kinds of engines having pumps placed in tubs or cisterns. Shortly before the publication of Batt's treatise, Hautsch's engines were introduced from Germany into London; and three of them were used at the fire on London Bridge. In 1657 Casper Schott, the Jesuit, saw at Nuremberg one of John Hautsch's engines, "which threw a stream of water one inch in diameter to a height of eighty feet when worked by twenty-eight men." Whilst Hautsch's engine was achieving marvels at Nuremberg, John Evelyn's friend, Greatorix, was astonishing London with "his excellent invention to quench fire." But, notwithstanding the advances of mechanical art, the fire-engines of London were found to be absolutely useless during the Great Fire of 1666. The official account of that conflagration states that the "lamentable fire in a short time became too big to be managed by *any engines*."

THE CHINESE COMMISSIONERS IN THE COAL PIT.

DURING their tour in the manufacturing districts, the Chinese Commissioner and his suite visited the coal mine of the Messrs. Bullock, near Birmingham, with the intention of descending, but when they looked down the yawning mouth of the pit, they seemed rather disinclined to venture. They did not, however, like to have their journey for nothing; and, after a short but vigorous conversation in Chinese, they resigned themselves with Oriental fortitude to their fate. Miners' jackets and hats were brought, and they were politely requested to strip off their outer attire, and accept the English costume. Yen-Hwei at this resolutely shook his head, and objected to go down, because, he said, the English people would laugh when they read what a figure he cut, without his fine flowing robe and state hat. After a little persuasion, however, from his Chinese friends, Kuang-Ying and Fung-Yih [the Commissioner and Teh-Ming had remained in one of the carriages], he took off his outer garments, and assumed the dress of the miner. They then stepped on to the square piece of wood which did duty for a tub, and were severally chained fast. They were accompanied by Major Brice and three other gentlemen. Over their heads was what the miners called a "bonnet," to keep off the drops of water. As soon as the platform had been drawn away, Fung-Yih called out "Hold fast," in Chinese; and, as the party plunged into darkness, the Orientals became mysteriously silent. Not a word would they speak, save now and then when the platform gave an ugly tap on the side, when a guttural sound resembling "Ho! hi!" escaped their lips. The passage down seemed interminably long; down, down they dropped in utter darkness every one—Europeans and Chinese—clinging most tenaciously to the chains which looped the platform to the descending wire-rope. The tedium and monotony of the journey was varied by the unpleasant feeling that drops of dirty water were falling down their backs. At length there came the sound of human voices floating up like a distant echo, and in a few seconds the bottom was reached. Then, before any one of the party could be unchained, the "bonnet" tilted, and showered amongst the visitors all the dirty water and bits of coal that had been collected in many journeys. At the bottom, miners, naked to their waists, and begrimed with dirt, awaited the visitors. They politely handed to each stranger a candle, stuck in a bit of clay, and wrapped round with hay. The Chinese gentlemen accepted the candles, but would not stir an inch from where they stood. After some delay a trolly was obtained; on this bags of hay were laid, and the three Orientals, seated thereon, were drawn by a horse along the mine to a large central room, where some hundreds of tons of coal lay about. The miners were evidently much puzzled to know of what sex the foreigners were, and one of them, in a whisper, asked us, "Bean't two of 'em women, sir?" When the party were in the mine, they were joined by the manager, who conducted the party along the workings. The shaft was 400 yards deep, and, considering the character of the visitors, it was a most extraordinary undertaking for them to descend. On reaching the top they declared, one and all, that a coal-pit was a very dirty place, and expressed their determination never to go down another.

SOUNDS.—The gravest or lowest sound which the ear can ordinarily discern is one made by a body vibrating only fourteen or fifteen times in a second; while the most acute audible sound demands for its production no fewer than 48,000 vibrations per second. Dr. Wollaston was certainly correct, that the ear, fine as it is, as well, perhaps, as every other human sense, is adjusted to the discernment only of one finite and allotted span within an infinite universe.

The Useful Metals.

NICKEL AND ITS ALLOYS.

NICKEL is a greyish-white metal, more malleable than iron, eight or nine times denser than water, magnetic, unoxidisable even in moist air, soluble in strong acids, and susceptible of forming alloys with copper, zinc, and iron. This is what chemistry teaches us.

But industry had turned nickel to account long before any of its chemical properties were studied, and by the applications made of it helped to advance science. It was through the studies made upon another metal—cobalt—that we owe the introduction of nickel into the industrial working of the metals.

In 1540, Schurer discovered a substance which had the property of colouring glass blue; this was the oxide of cobalt. It was not until 1733 that Brandt discovered metallic cobalt. Cobalt was, therefore, applied to industry 200 years before it was known what it was, and it has never been applied to any other use since its discovery than it had been before. Only, this use is so important, and nature supplies so little of the mineral cobalt, that it has acquired a value which, up to a certain point, might admit it to rank among the precious metals.

To obtain cobalt blues, which have served from time immemorial to colour glass and porcelain, and incrustations on metals, the cobaltiferous minerals are treated by fusion and oxidation. Almost all the cobalt is oxidised, and it is in the scoriæ, or residues, that the metallic portions called *speiss* are found. The scoriæ were regarded as poor in cobalt, and thrown away as useless, containing nothing but what was at that date called bastard iron, but which is now called *nickel*. Besides nickel, this speiss contained also some foreign metals, such as bismuth, iron, copper, and arsenic; and it is by eliminating some of these metals that we obtain ready-formed alloys, the real composition of which remained so long unknown.

Not until 1751 was nickel discovered by Cronstedt and Bergam, independently of each other, and classed in the rank it now occupies among the metals.

Nickel exists in most cases in meteoric stones. That of Santa Rosa, near Santa-Fé de Bogota, was made into a sword for the Emperor Bolivar. It was two and a-half feet in length. Captain Ross found the Esquimaux in possession of knives composed of the meteoric nickel of Greenland. At Suhl, a metallic composition, known to the Chinese, is employed under the name of white copper, for ornamenting arms and weapons. It resembles silver, and is an alloy of nickel with zinc and copper.

Nickel enters into numerous alloys: among others we may mention argentine, white copper, German silver, packfong, Britannia metal, ruolz, alfendhide, &c. The analysis of tutenag was pursued for a long time only on account of the nickel it contains.

Nickel is a metal which may now be obtained completely pure, and, in consequence of the recent discovery of mines of this metal in Italy, in large quantities. To almost all the properties of iron it adds the whiteness, brilliancy, and unalterableness of silver, even when it is placed in conditions which usually cause the oxidation of the other common metals. These properties render it so like silver, that it is not always easy to recognise which is which, not even by its sonority, which is as well developed in nickel as in silver; and recent experiments have shown that identical effects may be obtained by the graver on both metals.

It is also less fusible than iron, and so little fusible altogether, that if it is sometimes melted in a covered crucible, it is owing to the presence of a small quantity of carbon combined with the metal. It has also the property of cementing like iron, that is, of combining with carbon in such a manner as to produce a metallic body, fusible at a given temperature, exactly similar to steel. This property, which up to the present time has not been studied or utilised, will probably be called to render important services, and help to increase the importance already so justly acquired by nickel.

It is to this property, principally, that we owe all the labours, all the studies upon nickel, and every application hitherto made of it. It forms alloys with almost all other metals, together or separately, without sensibly altering their properties. It has for a long time been employed alloyed with iron, copper, zinc, tin, and silver, in all proportions, and under the best conditions. Almost all these alloys are fusible, and the degrees of fusibility and of unalterability are regulated by the proportion of nickel in the alloy.

Allied to other metals, or completely pure, nickel is always more malleable than iron, and quite as resistant; it is nearly as ductile as silver; it may be rolled, and, just like iron, will acquire the fibrous or granular texture under the same conditions. It can be worked hot, like iron, or cold, like silver.

It is susceptible of producing all the effects of *mat*, or polish, as in silver, without the aid of electrotyping. It also gives the colour and brilliancy of silver to the alloys into which it enters, although in very small quantity. For example, an alloy of nickel, copper, zinc, and iron, which contains only 12 to 15 per 100 of nickel, is perfectly white.

The alloy of nickel with copper and zinc has given the most valuable results; but as it always happens upon the introduction into the usages of life of a new, little-known, and somewhat dear material, industry has, in the employment of nickel, shown itself as cautious as parsimonious. So, in examining the new series of alloys, having nickel for a base, we perceive that, from the first, the proportion of nickel was very restrained; and we can follow its increase with the development of favour for these alloys up to the moment when nickel, emancipated, so to speak, from the triple guardianship of iron, copper, and zinc, finally appears alone, seeking to dethrone silver in the greater number of its applications.

Only eight years ago a metallic article containing nickel would not have been allowed to circulate without being previously galvanised—that is, not without being covered with a coating of silver more or less thick, according to the purpose for which it was intended, and also according to the greater or lesser quantity of nickel it contained. This galvanisation was not, however, useless when the quantity of nickel entering into the alloy did not exceed 10 per cent., as was generally the case. Every one must have experienced how disagreeable the colour of articles styled *nickel* is, which become yellow at the points where the silver wears off.

There is no need of silvering nickel now-a-days: pure nickel resembles silver too much. Its success is complete, and no one would think of disputing the victory. Silver costs about 5s. the ounce; pure nickel about 5s. the pound: the workmanship is the same for both metals. Nickel is employed in the construction of clocks and watches, and in the most delicate jewellery. Optical instrument and philosophical instrument makers generally employ this new metal: for carriages and harness it is extensively employed; and Belgium, Switzerland, and the United States of America, have introduced it as coinage.

Its rarity has hitherto been the cause of the limited number of appliances it has received; but the discovery of a mine of nickel at Cruvino, in Italy, secures a supply for all the wants of industry. Some mines in Piedmont which had been closed upwards of 200 years, were re-opened in 1860. The nickeliferous minerals hitherto recognised are not very abundant by themselves; while, with a few exceptions, the quantity of nickel contained in these minerals is so small, that they can rarely be worked profitably, if they do not contain in abundance some other metal more or less precious. Nickel is found in nature, in the native state, and in meteoric iron, but always allied with iron.

DURATION OF GRANITE.—At a recent meeting of the Society of Arts, an important discussion occurred relative to the value of granite as a building material. The question was asked, at what rate the granite forming London Bridge was being worn away; and to this, Professor Tennant, of King's College, replied that the foot pavement of London Bridge wore away at about the rate of one-eighth of an inch in four years. The effect upon the parapets is best seen at Waterloo Bridge. Some years ago an alarm was raised regarding this bridge, and it was asserted that the granite had decomposed to such an extent as to render the bridge unsafe; but observation shows that this alarm was unfounded. The obelisk of Heliopolis, which is at least 3,000 years old, is still in good condition. We need not, therefore, have much fear for our bridges.

*Landlord and Tenant.**

DISTRESS.

By this name is designated the proceedings that may be adopted by the landlord for the recovery of rent in arrear.

The law gives a landlord privileges beyond any other creditor; for, instead of being compelled to sue at law for an amount that may be due, he may enter the premises and take so much of his tenant's goods as will sell for the sum owing. But it is necessary to the exercise of this power that the rent should not only have become due, but have been refused on application; and, moreover, no one but the actual landlord, or person duly authorised on his behalf, can levy a distress. Thus, if a landlord have parted with his right to the premises, he can no longer enter upon them, whatever sum may previously have become due to him from the tenant.

No distress can be levied on the same day that rent becomes due, nor between sunset and sunrise. Sunday, Good Friday, Christmas Day, or any day appointed for public fast or thanksgiving, are also times when such proceedings cannot be taken. To effect the distress, the landlord is not allowed to enter the house by force, by breaking open an outer door or window, but must effect his entry on the premises in some other way. When once he has so entered, he can seize the furniture, &c., that may be upon the premises, and to resist either him or his agent in so doing is an unlawful act.

If the tenant has clandestinely removed his goods, the landlord is empowered to follow them for a period of thirty days, and during that time he may effect a seizure, whoever may be the owner or occupier of the premises upon which they may be found. If, however, the tenant should remove his chattels at any time before the rent becomes due, the landlord cannot follow the goods, but must sue the tenant after the rent is due, as a creditor in the usual way.

A landlord is allowed to recover, by distress, any sum of money that may be due for rent up to the term of six years. If an execution has been put into the house, and the goods of the tenant are seized by some other party, the landlord is entitled to be paid out of the proceeds of the furniture, &c., one year's rent, if it is in arrear. The same law is in operation if the tenant becomes a bankrupt; but for any sum beyond the one year's rent, the landlord in such cases has only the same remedy as other creditors.

There are certain limitations and restrictions as to the articles that may be seized in distress, the chief of which are in favour of trade. A man's tools and implements in actual use may not be taken, nor may articles belonging to a third party and brought home to be made or manufactured by the tenant. Perishable articles that cannot be restored in precisely the same condition are also exempt from distress, the general principle being that nothing may be taken which cannot be returned in the same state. Deeds and documents are privileged from seizure, as also loose money, but money may be taken if in a bag. Wearing apparel on the person of the owner, a watch in his pocket, and the like, may not be touched.

Goods found upon the premises, whoever may be the owner, may be seized by the landlord; and therefore the furniture of a lodger may be taken, although he may have paid his own rent. In such a case his remedy is supposed to be that he may deduct his loss from the next rent due for the lodgings. Hired furniture, and furniture which the landlord knows to be hired, may also lawfully be seized.

Distress cannot proceed if the amount due be tendered in money, and at any moment before the goods have left the premises the tenant may recover them by paying the rent in arrear. When the goods are removed, notice must be given in writing of the place to which they are taken, and of the intended sale, which is not lawful until the expiration of five days from the distress. An inventory of the goods distrained must accompany the notice. The tenant can then, prior to the sale, still recover them by paying the debt, with the expense of the levy in addition.

The distress should be to a reasonable and sufficient extent, but not beyond; and it must be conducted in a proper and legal manner. Any illegal proceeding renders the distrainer liable to action by the tenant, and to treble costs. The goods must be valued by two appraisers, neither of whom is interested in the distress. The distraining broker cannot himself value the goods. After the landlord's rent and charges are deducted from the amount realised by the sale, the overplus, if any remains, must be paid to the tenant. The tenant is entitled to examine the bill of sale, if he think fit.

The landlord himself is answerable for any illegal conduct of his agent in conducting the distress; but if the distress itself is legal, and some irregularity be committed in its course, the latter is not now sufficient to vitiate the proceedings, though this used to be the law.

In concluding this important branch of our subject, we will add that in any case of grievance or injury, real or supposed, resulting from a distress, recourse should be had at once to the advice of a magistrate or solicitor, who will instruct the complainant how to act.

* Continued from page 356.

Locks and Safes.

The great jewel robberies which have recently occurred in London and elsewhere, have attracted considerable attention to the question of lock and safe security. There can be no doubt but that the opinions evoked on this—everybody's—question (for most people have to trust to a lock), have produced a vast amount of benefit both to the public and the lock and safe maker. There is being done for safes what the great lock controversy of 1851 did for locks. Up to that period the absolute inviolability of "ward," "tumbler," "lever," and "slider" was a canonical dogma of mechanical faith, to doubt which was rank blasphemy. The clever, successful operations, however, of the "light-fingered" Anglo-American suddenly and painfully awoke us from our fool's paradise; and the great firm in Cheapside established a principle of lock-security which has exercised a beneficial influence upon all the leading lock-makers in the realm. We have only to mention the names of Hobbs, Hart, and Co. (the vanguard in the new order of things), Chubb and Sons, Bramah, Cotterill, Price, Tann and Sons, and other celebrated makers—we have only, we say, to mention these "shining lights" of the lock-making world to satisfy ourselves that lock-security has almost reached its climax for the remainder of this century. Each have their special recommendatory qualities, which they can sufficiently explain to the public without any assistance of ours. What we wish to say here is, that the city burglaries have turned inventive heads in the direction of safe improvement. Information has reached us that the two principal London lock-making firms, Hobbs, Hart, and Co., and Chubb and Sons, have been for some time past quietly, and with commendable modesty, making model experimental safes, with the view of ascertaining what amount of burglar-proof security can be attained in such articles.

And this brings us at once to the question of safe security. It must be borne in mind that a safe is expected to fulfil several conditions in combination. It should be sufficiently portable for removal; not too heavy to endanger the flooring of those ancient closets that, in times gone by, when business people were compelled to live where they earned their bread, served for the stowing of the family linen, or the socks and frocks of infant citizens and citizenesses. It should be sufficiently fire-proof to preserve books and parchments from destruction under the usual contingencies of a burning house, and it should also be burglar-proof, for *one night* at least. Beyond such period we don't think that, in the present state of the "science" of safe-breaking, it is possible to make a safe for ordinary commercial purposes, combining the requirements enumerated above, that can impregnably withstand the blowpipe, the drill, and the wedge of a couple of "handy" fellows well up in the nefarious art. Nor do we think it reasonable that safe-makers should be called upon to effect what almost verges on a mechanical impossibility. As well might an iron ship-builder be expected to construct a ship that should be rock and wreck proof, or our friend Captain Blakeley to build one of his "mortal engines, whose huge throats" could never be burst. Let us bear in mind that fourteen or twenty hours is a long time to leave to the attacks of mechanical burglars what is, after all, but a comparatively thin wall of iron. Crime never sleeps; and if the wonderful secrets of scientific research have been brought home, by means of cheap literature and popular education, to the humblest classes of the community, we may rest assured that the descendants of Jonathan Wild and Co. have not stood still and hungry during the general advancement. But, as a supplement to the qualities named above that a safe should possess, it should be easily and readily usable. This latter desideratum is nearly of as much consequence as any other. We must remember that if the "working" of the safe door is troublesome or cumbersome, that clerks in their hurry will not like it, and may occasionally omit to completely fasten everything. We do not now speak of the great banking houses, or other large commercial establishments, where they can afford, as in a man-of-war, to keep at least as many cats as there are mice to catch, but of the legion of moderate-sized active houses of business and offices, where the day is one long race of work to catch the last minute of post-time with the last stamp on the last letter. Yet all these places must have safes; and it has occurred repeatedly, within our own knowledge, that the safe-key has been, absent-mindedly, left in, with sufficient in the cash-box to reward the burglar for the trouble of taking it out. We have seen one very ingenious contrivance that effectually obviates such a contingency. It is called an index lock, and works in this wise: the safe-handle is of the ⊣ form, so as to admit of a good grasp. On the handle face is an arrow, cast as part of the handle itself, in *alto relievo*, with the barb pointing one way and the feather end another. Round the upper half of the handle-plate are the words "locked," "shut," "open," as the case may be; or any other words, to suit special purposes, can be used instead. The handle and bolt action, as a matter of course, form one piece of acting mechanism. Now, it frequently happens that a safe-door will be closed, and no one can tell, without trying, whether it is locked or not. By this lock-indicator, however, the exact condition of the door will present itself to the eye. Should it be merely "closed to," the arrow-head of the handle will point on the word "open" on the right. Give the handle a quarter of a turn, and the bolts will fly into their places, but be capable of being turned back by the same means, without the use of the key. The handle then stands exactly straight up and down, the arrow-head of it resting at the word "shut." Another quarter of a turn, however, passes the bolts still further, when the arrow-head stops at "locked." The door can now only be opened by the key. But the whole operation of locking can be performed at once without any stop, if desired. Thus, it will be seen that, before leaving the counting-house, one glance at the safe-door will, *without the possibility of mistake*, show the position of the bolts; and, furthermore, the key need never be left in the safe-door for any purpose whatever.

But, apart from all this, let us consider that a heavy safe-door, containing constant marketable securities, is being continually opened and shut throughout the day. Unless that door is evenly balanced, there is no managing partner or principal who will care to have his writing, or most sensitive, hand divided in work between the light pen and the ponderosity of the ever-swinging iron slab. Thus, as we approach in thickness of metal towards invulnerability, we have to contend against the concomitant inconvenience of weight in the movement of the door.

Paris and London.—Paris differs from London in some important respects. The manner in which land is owned in France does not give to one class of Frenchmen those large incomes which are enjoyed in England. But Paris being a place of much greater gaiety and fashion, is more the resort of the wealthy and extravagant of other countries. There is less social depravity in Paris than in London. The rich among the French are neither so rich, nor are they so poor, as in London. Paris is, in proportion to its population, a more productive city than London. Some manufactures are carried on pretty extensively in Paris. The workpeople are not so well paid as in similar trades in England, but they do not consume as much food, nor do they perform as much work. Our impression is, that the cost of any given article is nearly as much in Paris as in England, the equality in wages being met by a similar diminution in the quantity of work. The French workmen rarely eat more than twice a day, while English workmen eat four times a day.

Things Talked About.

A WRITER in *Macmillan's Magazine* has been indulging in sketches of cheap popular literature, and he comes to the conclusion that the "common people," who patronise it, are a terribly depraved lot. They love all sorts of imaginative horrors, providing they are seasoned with a due savour of moral reflection. In other words, the "common" people are afraid to be outspoken, but are so little able to discriminate between right and wrong, that if they are told black is white and vice virtue they are perfectly willing to believe it. Says the writer:—"The heart of the *plebs* in this country is not to be reached but in gushes of moral wisdom. Give the poor man sensation; let him sup full of horrors; initiate him in all the mysteries of crime; but always be it remembered that one condition is essential to the success of the dreadful tale—that it shall somewhat ostentatiously ally itself to morality. A good Catholic makes the sign of the cross when he fears that he has got into the company of evil spirits. The honest, beer-swilling Briton of the lower order loves to make moral reflections when he finds himself in doubtful company. He is thus about a hundred years behind the more educated Briton." We happen to know something of cheap literature, and dear literature, too. And we also know that the "beer-swilling Briton" troubles himself very little about any literature whatever. "You are another" is not the best argument in the world; but if we chose to direct attention to the subjects and style of very many of the novels, plays, and operas which find favour with the "more educated Briton," sensational in the worst sense, exhibiting the foulest vices, glossed over with the most mawkish sentimentality, we could show a startling array of "horrors and mysteries of crime," and "gushes of moral wisdom," which would very sufficiently keep cheap sensational literature in countenance. But the writer forgets, or probably never knew, the millions of cheap publications of the most elevating and wholesome character which are yearly circulated exclusively among the working classes. The writer should have made himself better acquainted with very familiar facts before he ventured to sneer at cheap literature.

The House of Commons has passed the Chartered Gas Company's Bill through the second reading by a majority of thirty-one. The House of Lords may yet defeat the measure, and so support the great principle, that all such works should be erected at a distance from populous neighbourhoods, and most certainly very far away from public pleasure-grounds. Encouraged, probably, by the spirit displayed by the defenders of Victoria Park, the inhabitants of the borough of Finsbury are determined that the project of forming a park in the northern district of the metropolis shall be realised in its integrity. The Rev. W. B. Mackenzie, who presided at a meeting at Myddleton Hall a few evenings since, said the Legislature, nine years ago, had allotted to them a very small space of ground; but the Board of Works sought still further to lessen its dimensions by erecting buildings that would interfere with the beauty and utility of the park if ever it was to be obtained. Several resolutions condemnatory of the proceedings of the board were unanimously adopted. The members for the borough have promised their support in the matter, and a deputation has been appointed to express to the Board of Works the popular feeling.

The Sheffield file-grinders appear willing to come to terms with their employers, who, we regret to add, seem unwilling to meet them in a similar conciliatory spirit. Deputations from the grinders, smiths, and hardeners, had interviews with the committee of the Masters' Association last week. The object of the grinders and smiths was to ascertain whether the masters were still willing to submit the list of prices to revision by a joint committee of masters and men. The masters' committee reminded the deputation that the men had rejected the proposition when it was offered to them. The prospects of trade had now greatly changed for the worse, and the committee considered themselves bound, by the resolution passed at the last general meeting of the employers, to decline any proposition for an advance of wages. The hardeners submitted a revised list, and further desired to be employed on piece instead of by the day. These propositions were also declined, the committee being of opinion that manufacturers should have the option of employing their men either by piece or by day, as might appear most desirable.

A number of the most respectable and influential inhabitants of Deptford have come forward to support the dockyard labourers in their request for an advance of wages, and have memorialised the Board of Admiralty on the subject. A claim so supported can scarcely be unreasonable.

The majority of the coal-heavers and quay-porters at Liverpool, who were out on strike, have gone back to work, at the advanced rate offered by the employers; but the seamen and stokers remain out, determined not to resume work until all their claims are satisfied.

A minder at a mill at Ashton-under-Lyne has been committed for seven days to prison by the magistrates at the County Sessions under peculiar circumstances. He was charged with leaving his work without giving seven days' notice, pursuant to contract. The engagement to give and accept seven days' notice was clearly proved, and the general facts of the case were not disputed, but the defendant pleaded that the complainant had broken the contract, inasmuch as the hands were stopped on the morning he left, and he asserted that he had been idle nine days at a time from a similar cause. When he engaged he said he expected to have full work. When they had no work on Friday morning, he walked away with other men, and obtained work elsewhere. In answer to this plea, it was proved that on the morning in question the defendant was only stopped a short time, and then told to go on with his work, but he refused. The chairman said he had only been stopped one hour; but if he had been eight or nine days without work, then he thought the defendant would have been perfectly right in leaving and getting work. A similar case was heard in the borough court of the same town, and the decision was exactly the reverse. It would be very satisfactory if a case were taken to a superior court, so that we might know what is the law of the matter.

Some of the London magistrates have decided on sending cabmen for trial, instead of summarily convicting them, should they, by furious driving, inflict any personal injury. The notice of their intention may perhaps act as a useful warning.

Sir Morton Peto having offered to resign his seat for Bristol, if his constituents were not satisfied with the financial condition of the firm of which he is the head, a meeting of the electors has been held, and forwarded to him a resolution expressive of their perfect confidence in him as their representative.

EMIGRATION ARRANGEMENTS AT NEW YORK.

EVERY man, woman, and child who comes to New York in the character of an emigrant must pass through the office of the Commissioners of Emigration in Castle Garden. Before the passengers of an emigrant ship leave her, their luggage is taken charge of by officers of the institution, for which numbered metal tokens are given. Both the passengers and luggage are then landed by the aid of a steam-tug belonging to the commissioners. After this, the passengers pass through the landing-office, in front of a series of desks, where their names, age, profession, country, the name of the vessel they arrived in, their destination, and the names of such friends or relations to whom they are going (if they have any) are booked. They are then forwarded to boarding-houses, which are licensed by the municipal authorities, and under the direct patronage of the commissioners. The custom of these houses is made to depend upon the manner in which their keepers conduct their business; they are not only required to treat the emigrants fairly in their charges, but they are held accountable for such property as may be entrusted to them by the lodgers. The luggage left in the Garden can be called for when it suits the convenience of the owners, and whether removed soon or late there is no charge made. If an emigrant intends to remain in New York, and his luggage is such as he cannot carry away, it will be forwarded to his address at a much lower rate than he could have done it by engaging a conveyance himself. Those emigrants who are going to the interior of the country are forwarded by the commissioners, in their own steamers, either to the railway stations or the vessels by which they are to travel; and in order to prevent their being imposed upon, they are supplied with tickets which will free them to their destination, in whatever part of the States that may be. When the emigrants leave New York for a distant part of the country, the commissioners do not lose sight of them, but, by means of their agents in many of the distant towns, provide asylums for the indigent and employment for the able-bodied. The class of emigrants who are without the means of transporting themselves to the interior of the country, have loans granted upon such luggage as they may possess, which they can redeem when in employment, and no interest is charged for the money. The commissioners are also agents for employers over the whole of the States, so that they are enabled to find situations for emigrants in almost any of the branches of industry. Their employment office at the landing building is a highly valuable institution. By means of this office numbers of young girls are saved from moral shipwreck.—*The Working Man in America.*

WHAT WE OWE TO INVENTORS.—Inventors have set in motion some of the greatest industries of the world. To them society owes many of its chief necessaries, comforts, and luxuries; and by their genius and labour daily life has been rendered in all respects more easy as well as enjoyable. Our food, our clothing, the furniture of our homes, the glass which admits the light to our dwellings, at the same time that it excludes the cold; the gas which illuminates our streets; our means of locomotion by land and by sea; the tools by which our various articles of necessity and luxury are fabricated, have been the result of the labour and ingenuity of many men and many minds. But mankind are all the happier for such inventions, and are every day reaping the benefit of them in an increase of individual well-being as well as of public enjoyment.—*Self-Help: New Edition.*

Notes and Extracts.

THE passage of a rifle bullet through the brain would not occupy more than the thousandth of a second; a stroke of lightning would pass through the body in much less time; thus a person killed by either of these means would die without consciousness having time to be produced, as proved by the aspect of those who have thus died.

DR. ANGUS SMITH, when travelling in a railway carriage, collected some of the particles of dust which floated in the air, and which seemed to shine with a metallic lustre. On examination these were found to be in reality rolled plates of iron, which seemed to have been heavily pressed and torn up from the surface.

THE LAW OF LIMITED LIABILITY.—Several of last week's papers contain remarks upon Vice-Chancellor Wood's judgment in the case of the "Anglesea Colliery Company," 14 W. R., 708, showing the most total misapprehension of the nature of that decision. It is not the case, as there represented, that the Vice-Chancellor has held that the holders of fully paid-up shares are liable to further calls, but the holders of shares not fully paid, are liable to calls made for the sole purpose of adjusting the equities between them and the fully paid-up shareholders, and that these latter are "contributories" for that purpose, *i.e.*, for the purpose of receiving the proceeds of, not of paying, the call.

MINERAL OIL AS A SUBSTITUTE FOR COAL.—A series of important experiments upon Mr. Richardson's method of burning mineral oil as a fuel for steam-ships and steam-engines, was terminated recently at Woolwich Dockyard with complete success. Ten pounds of water is the highest quantity that has ever been evaporated per pound of the best steam-coals: upwards of eighteen pounds of water has now been evaporated continuously for many hours by oil from the celebrated Torbane Hill or Boghead mineral. The trials with other rock oils, though not reaching quite so high a figure, have been such as to prove the superiority of mineral oil over coal, and the perfect capability of maintaining the strongest fire without the slightest cessation or diminution of its intensity, until the complete exhaustion of the store of fuel.

DIVING AT THE THAMES EMBANKMENT.—Opposite Buccleuch House there is a diver descending a ladder, supported on scaffolding, into the water. He is bent upon giving assistance in the task of removing piles no longer required. There are five men in attendance upon him. First, they weight him with metal weights, slung from his shoulders over his diver's dress. His helmet is on, and the round glass in front of the face screwed tightly up. They fasten a rope to him. He steps into the water, which rises to his knees, his middle, his shoulders, and finally closes over his head as he descends from rail to rail. The other two men in attendance on him pump air through a flexible tube, which descends with him into his helmet. A shovel is first lowered to him, then an auger. The water flows on as before. Craft of all sorts pass and repass; still there is no sign of him. The looker-on begins to feel an oppressive shortness of breath and sense of anxiety. His thoughts are unconnected, thinking now of the naked pearl-divers in warm Indian seas, wondering almost simultaneously whether this mysterious stay of the well-clad being below the water was another of the secrets that the river would never tell, recurring to the pearl fisheries, and the shark-charmers that accompany every pearl-fishing expedition. At last, half an hour has elapsed. There is a slight commotion among the attendants, and the diver's helmet appears above the water.—*Builder.*

A WORD FOR LANCASHIRE.—A noble county, be assured, is that of Lancaster, notwithstanding its tall chimneys, and black-mouthed coal-pits, and smoke-begrimed faces, and swarthy artisans, and cotton-covered operatives. The Southern shrinks from it as a pestilence. The Londoner would almost as soon be stuck up to the neck in a Tipperary bog as be fixed in a manufacturing town. But, over the wide world, point out to us a district of the same extent as Lancashire with the same properties of greatness. In this much-maligned county there are fields as green, and landscapes as fair, as eye can rest on. Nowhere is agriculture, in its science and practice, advancing more rapidly. From beneath its surface coal is dug out by brawny arms to turn the machinery of the monster factory, and to cheer the fireside of the humble cottage. From its mountain-sides the stone is quarried in abundance. Along its picturesque valleys the dancing waterfall is made available for turning the wheels of the mill, and the wild beauties of Nature are trained to the service of the practical and useful. Railways intersect the county like net-work, affording unusual facilities of transit. On its rivers float the argosies of a hundred lands; and from its ports are borne its manufactures to the four corners of the earth. Its inhabitants are characterised by a sterling intellect of Saxon parentage, polished and whetted by the daily attrition of commercial dealings. Many a strong mind has struggled up from the weaver's loom, till it has enriched the literature of the day, or increased the comforts of the day by its practical inventions. A county, indeed, not without its failings; but still a county "whose merchants are princes," whose women are said to be "witches," and whose people generally, though rough and gnarled in their outside bark, are, in the main, sound at the core!

Co-operative Intelligence.

Poole Co-operative Society.—The committee of this society, which has been in existence since February last, have just issued their first report. It is as follows:—"Your committee have great pleasure to report that the sale of goods for the quarter has amounted to £263 16s., realising a net profit of £19 19s. 5d., after providing for the necessary expenses incurred in establishing the society. The society consists of eighty members, with a share capital of £112 14s., and a deposit capital of £15. The average takings per week amount to £20 5s. 10d. The society, therefore, have a surplus equal to a bonus (after allowing a dividend of 5 per cent. on shares) of 2s. 6¾d. in the pound on the amount of purchases made by paid-up members prior to 30th April, which purchases amount to £157 0s. 11½d. The committee invite members to deposit sums of not less than £5, repayable in not less than six months, to carry interest at 5 per cent. They therefore hope that the members will see it is to their advantage to deposit their savings with the society, so as to enable the committee to go to first-class markets for goods."

Ossett Co-operative Society.—From the nineteenth quarterly report it appears that the society is in a flourishing condition. After paying all expenses, and 5 per cent. on capital in £1 shares, the committee purpose paying a dividend of 2s. in the pound on £2,433 purchase money, leaving a balance of £10 8s. 9¾d. to carry to the reserve fund, making a total reserve fund of £31 6s. 3d.

General Information.

CLUBS AND INSTITUTES.

Notice to Working Men's Clubs and Institutes.—The council of the Working Men's Club and Institute Union beg to give notice that they have abolished the annual fee of 5s., payable by clubs affiliated to the Union. The registration fee of 2s. 6d.—payable by clubs on their first coming into Union—will still be payable.

The Spottiswoode Choral Society's annual concert was held on Monday evening, the 11th inst., at the Great Hall, Whittington Club, and deserves noting as a most gratifying *réunion* of employers and employed. The programme comprised a choice selection of sacred and secular music of the highest order, rendered with considerable skill both by vocalists and instrumentalists. It is certainly an indication of an improved relationship between capital and labour when, after working hours, the employer participates in, and even leads, the rational recreation of those he employs.

EMIGRATION.

The Time to Emigrate to Canada.—It is important that the emigrant should arrive early in spring. By leaving home in April or May, he will get to Canada at a time when labour is in general demand. The highest wages are paid during harvest; but his main object should be to procure employment by the year, thereby securing a home for the winter. It must be borne in mind that until he becomes acquainted with the ways of the country, his services are not of much use to the farmer, and he should, therefore, be particularly careful not to fall into the common error of refusing reasonable wages when offered to him on his first arrival. On no account should the agricultural labourer be persuaded to emigrate to Canada after the month of August, unless he is coming out to friends.

Female Emigration to Australia.—Miss Maria Rye, who has just returned to England from a visit to the Australian colonies, whither she proceeded three years ago with 100 women emigrants, was present at a recent meeting held at the offices of the Social Science Association, in London. Colonel Sykes presided, and Miss Rye read an interesting account of her visit to the antipodes. She was received with great cordiality, and her statement was listened to with much attention, and greatly applauded. She described the colonies as being excellent, not only for their climate, but for the abundance of their products, and the absolute certainty there was of obtaining all the necessaries, and most of the comforts, of life by all who chose to work. She first visited New Zealand, describing Otago as an excellent place for settlement. She left the 100 young women she took out to that district there, and she had since received information that all of them, except some three or four who came to her with false characters, had done well. She afterwards visited Canterbury and Nelson. After leaving Nelson she visited Marlborough, Picton, and Wellington. She described the land in the neighbourhood of Auckland as igneous in its origin for at least fifteen miles round, and mentioned the fact that, from a hill in the middle of the town, at least twenty-five extinct volcanoes could be counted, and stated that the land was in many parts covered with large masses of scoriæ. The town itself was of a purely commercial character. She then went on to describe her visit to Australia, and gave a very glowing description of the vegetation, the flowers, and fruits of Sydney and its neighbourhood. Here she was much pleased with the arrangements for the reception of female emigrants. She afterwards went to Queensland, and described the vegetable productions of Brisbane and its neighbourhood as something wonderful. Rows of pine-apple trees growing like cabbages, while the tea and coffee trees, the sugar-cane, arrowroot tree, cinnamon, and bamboo, were all growing one alongside of the other. Honey could be obtained from the bush trees by buckets full, and the coast was covered with oysters. There were very good arrangements for the reception of emigrants at Brisbane, but she informed the company that nothing could be more discreditable than the manner in which they arrived at the port, crowded together in the vessels, squalid and dirty, while in some instances the death-rate on the voyage had been from 30 to 70, or, in other words, from 9 to 20 per cent. She next went to Victoria. The town of Melbourne was, she said, one of the finest she had seen, both as regarded the public and private buildings. Arrangements were entered into by the Government to grant 150 free passages for female emigrants per month, but the Colonial Government refused any grant for the immigration of educated women, on the ground that the Colonial Legislature only contemplated granting funds for the assistance of the labouring emigrants. She was, however, of opinion that there was a great demand, both in New Zealand and Australia, for governesses; and she considered that if any mistake had been made by the society, it was in sending out young women who were not sufficiently accomplished. Indeed, persons possessed of the highest accomplishments were always in request, and invariably did the best, though all did well.

INDUSTRIAL EXHIBITIONS.

Provincial Exhibitions in France.—The Bourdeaux exhibition is one of the most important after Paris, and the amount expended for works of art this year exceeded £2,057; of this, nearly £1,200 was paid by private persons for 60 works, rather over £800 for 34 works purchased by the society by which the exhibitions are instituted, and £60 by the authorities of the town for one picture; the total number of works purchased being, consequently, 95, and the average price between £21 and £22 each. In the list of the painters whose works were sold are the well-known names of Rousseau, Antigua, Landelle, Boulangé, and two of the medallists of the present Paris Exhibition—Claude and Brown.

Correspondence.

*** *We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

THE "WORKING MAN" LIFEBOAT.

To the Editor of the Working Man.

Sir,—I am very glad to find that the subscriptions for the purchase of the Working Man Lifeboat are beginning so well. In my opinion the matter is one which concerns us working men more deeply than appears at first sight. The sailors who man our ships are as truly and really working men as are ourselves. Their fathers and brothers are generally working men, and they have to undergo in an aggravated form all the hardships and discomforts which sometimes appear inseparable from working class life, for with them it is often all work and no play, especially during the tempestuous weather of the winter months. We are always ready to club together for the purpose of assisting such of our mates who may, by reason of accident or illness, have been thrown out of work, and I do not see why we should not also assist in saving, in times of danger, our fellow-workers on board ship. But for them we should not have many of the materials from abroad, the manufacture of which gives so many of us employment; nor should we be enabled to send to foreign markets the goods so made. Consequently, I hope that every workshop and factory—from the large establishment, with its thousands of hands, to the little shop, with its half-dozen workers—throughout the United Kingdom, will assist in promoting an object which has for its aim the development of those fraternal feelings which have ever characterised us working men as a class. There are few working men who, if they beheld a vessel in danger, would hesitate to assist in rescuing the despairing crew and passengers; and when we can do so without danger to ourselves, without even the need to leave our work-bench or home fireside, I say that we ought to do all we can in the matter. I quite agree with what has previously been stated on the subject in the Working Man, and hope that, when the proper time comes, I shall have the pride and satisfaction of gazing at the messenger of hope and mercy, purchased with the hard-earned pence of us working men, as it stands in the midst of the great industrial display which will be held this autumn in the Agricultural Hall.

A Working Man.

EMIGRATION TO AMERICA.

To the Editor of the Working Man.

Sir,—I was much pleased with the article on "British Columbia" in No. 22 of the Working Man. I once thought of emigrating to the United States, and read the works of various writers respecting that country. But I was not satisfied after all I had read, having an objection to the climate. Since then I have received a letter from a brother of mine, dated Chicago. He states that "the chief portion of the people of this part of America are Germans, or the descendants of Germans. It requires a hardy race of men to live here. Many who come here are not prepared to stand the heat of summer or the cold of winter, and sell their farms, half improved, for very little." Hence it will be seen that some thought is required before deciding upon emigrating to the United States.

J. H.

TO CORRESPONDENTS.

Antiquarian.—Pews are of comparatively modern origin. In the primitive churches the worshippers stood upright or sat upon the ground. Towards the year 1319, stools were placed in the churches, but a decree was needed in order to put a stop to fights to obtain these seats. About 1530, reserved benches were established, with the initials of the proprietors placed upon them. About 1614, we find mention of pews carpeted and cushioned like those of the present day. The high enclosures were introduced by the Puritans in order to escape the notice of the royal officers, who took note of those who did not bow when the name of Jesus was mentioned. Swift says massive bedsteads of ancient form, like those which our fathers used, have been transformed into pews; but they have not changed their nature, for they always offer a refuge to those who wish to sleep.

Artisan.—It was in 1825 that a bill was introduced into Parliament, enacting penalties for overwork in factories, and limiting the hours of labour on Saturdays from twelve hours a day to nine hours.

J. N. W.—"Any master convicted of having employed any person contrary to the provisions of the Factory Acts, or having employed any child without a certificate from a schoolmaster, is liable to penalties varying from one to five pounds for each child, young person, or woman so employed." 7 Vict., c. 15, s. 56. "Parents or guardians who receive a pecuniary benefit from a child's wages are liable to penalties varying from 5s. to 20s. for neglecting to cause the child to attend school." 7 Vict., c. 15, s. 57.

N. L.—Yes; it is possible to see the wind. The *Scientific American* says: "Take a polished metallic surface of two feet or more, with a straight edge—a large hand-saw will answer the purpose. Take a windy day, whether hot or cold, clear or cloudy, only let it not rain or the air be murky—in other words, let the air be dry and clear; it is better if the wind be steady, but this is not essential. Hold your metallic surface at right angles to the direction of the wind—*e. g.*, if the wind is north, hold your surface directed east and west, but instead of holding the surface vertical, incline it about 45° to the horizon, so that the wind, striking, glances and flows over the edge (keeping it straight), as water over a dam. Now sight carefully over the straight edge at some minute and sharply defined object, and you will see the air flow over as water flows over a dam. Make your observation carefully, and you will hardly ever fail to see the air, no matter how cold; the result is even better when the sun is obscured."

Apprentice.—The only authorised persons in London for the engagement of seamen, apprentices, and boys are—The Superintendents of the Government Mercantile Marine Offices, Minories; Sailors' Homes, Dock Street and Poplar; and the licensed Government Agents, Messrs. Suckling and Co., 11, America Square, Minories; and Messrs. Besant and Co., 84, Lower Thames Street. Any other person (except the shipowner, master, or mate, or the *bonâ fide* servant of the owner) providing berths for any seaman or apprentice is liable to a penalty of £20 for each offence.

Emigrant.—All persons, not having before resided in Queensland, paying their own full passages to the colony, receive a £30 land order (equal to thirty acres of land) for each member of their families of twelve years and upwards, and a £15 land order for each child between twelve months and twelve years. Free and assisted passages are given, without restriction as to age, to persons of the following occupations:—Shepherds, ploughmen, roadmakers, quarrymen, professed gardeners, miners, carpenters, masons, bricklayers, blacksmiths, wheelwrights, shipwrights, &c.; also female domestic servants of good character. Apply at the Queensland Government Emigration Offices, 2, Old Broad Street, London.

Builder.—The use of proper printed forms for an apprentice's indentures is allowed by the law.

A Wood Carver.—To answer all your questions would fill a page of the Working Man. You could not obtain a passage on the terms mentioned by you, nor is it certain that your condition would be improved by emigrating. If you are a steady, skilled, and industrious workman, your chances are as great at home as abroad.

J. R. B.—The short-hand system mentioned by you is the best.

A Working Man (Blyth).—While sympathising with you and your fellow-workmen in your struggle, we must decline the controversy which would inevitably follow the insertion of your letter.

S. J. Cooper.—Your excellent communication has been anticipated by us.

F. P.—Your suggestion has been complied with.

"WORKING MAN" LIFEBOAT.

(*4th List of Subscriptions.*)

	£	s.	d.
Acknowledged in No. 24..	35	12	6
A few Tin-plate Workers, at Stapleton's, Stepney..	0	3	3
F. W. Donaldson, Harborne, near Birmingham	0	10	6
J. A. Waggett, 3, Henry Street, E.	0	11	0
R. Hilson, Allanton	0	6	3
J. Walker, Heckley	0	2	6
J. Rigby, Crewe	0	9	4
C. F. L.	0	2	0
L. Gullaeheu's, Elliot's Row, Southwark	0	7	4
G. Glenny, Shotley Bridge	0	7	6
J. Jones, Alfreton Ironworks	0	3	3
R. Wood, Halifax.. ..	0	3	6
E. Bubb, Charlton Kings	0	14	0
J. Sydenham, 128, Drummond Street	0	5	0
M. and J. Hickling, Northampton	0	4	3
	£	91	2
Amounts over £1 unacknowledged	10	6	
Total	£56	9	0

Metropolitan and Provincial

WORKING CLASSES' EXHIBITION and INDUSTRIAL FESTIVAL, to be held at the AGRICULTURAL HALL, London, and opened on SEPTEMBER 3rd, 1866.

TO EXHIBITORS.

Contributions of Skilled Workmanship, or Amateur Productions, will be accepted from all parts of London, the Provinces, Scotland, Ireland, and the Colonies. For the benefit of Provincial Exhibitors, the Railway Companies have liberally offered to return unsold goods free, so that the expense of carriage will be but half the usual charge.

NOTICE.—Applications for Space must be forwarded on or before the 30th of June.

SPECIAL PRIZES.

The Council of the above Exhibition have much pleasure in announcing that, in addition to the MEDAL OF MERIT, designed for the occasion by J. S. and A. B. WYON, Esqs., the following SPECIAL PRIZES have been liberally offered by the gentlemen named, for the production of Articles to be Exhibited at the Agricultural Hall in September next, namely—

£15 0 0 in Money, or Silver Cup, for the MOST USEFUL INVENTION. Open to all Classes. The Gift of the Directors of the Agricultural Hall Company.

£10 0 0 in Money, or Silver Cup, for the best PAINTING IN OIL. The Gift of the Directors of the Agricultural Hall Company.

£5 0 0 in Money, or Silver Cup, for the second best OIL PAINTING. The Gift of C. COMFORT, Esq.

£5 0 0 in Money, for the best WATER-COLOUR DRAWING. The Gift of J. HARRIS, Esq.

£3 3 0 for the best GOLD BROOCH and EAR-RINGS, of Original Design, which can be sold for £10. (Sale for that sum to be permitted if required.) The Gift of JOHN HOLMES, Esq.

£2 2 0 for the best pattern, Birmingham make, GILT BRACELET, BROOCH, and EAR-RINGS, which can be sold for £3 3s. (Sale for that sum to be permitted if required.) The Gift of JOHN HOLMES, Esq.

£2 2 0 for the best Specimen of WHITBY JET JEWELLERY.

£2 2 0 in Money, for the best WORKING MODEL of a STEAM-ENGINE. The Gift of W. J. W.

£2 10 0 for the best ARTICLE OF UTILITY, made by an Amateur. The Gift of R. MURRAY, Esq.

£2 2 0 and a Silver Medal, the Gift of R. MURRAY, Esq., for the best WORKING MODEL of a MILL to grind Stale Crusts into Flour.

£2 2 0 for the best PEN-AND-INK DRAWING. The Gift of W. STRAKER, Esq.

£2 2 0 for the best Original Contrivance that may be suggested for improving the Fittings of WORKMEN'S DWELLINGS. The Gift of GEORGE CRUIKSHANK, Esq.

£2 2 0 for the best Specimen of SHEFFIELD CUTLERY. The Gift of T. RUDKIN, Esq.

£2 2 0 for the best Pair of LADY'S BOOTS. The entire work to be done by Exhibitor.

£2 2 0 for the best Specimen of INLAYING IN WOOD. The Gift of C. A.

£2 2 0 for the best Specimen of WOOD CARVING. The Gift of J. S. and A. B. WYON.

£2 2 0 for the best Specimen of CABINET WORK, made by an Apprentice who has served not more than four years to his trade. The Gift of Mr. I. HAYNES.

£2 2 0 and a Silver Medal for the best Specimen of ORNAMENTAL TYPOGRAPHY, consisting of a Quotation from Shakespeare, displayed and Printed in Colours, to occupy a royal 8vo page.

In addition to the above, the

EXHIBITION SILVER MEDAL

will be awarded to the Exhibitors of the best Specimens of

Household Furniture.	Stained Glass.
Hammered Iron-work.	Artificial Flowers, from Nature.
Watch-Case Engraving.	Working Model of a Steam Vessel.
Engraving on Glass.	Statuette, in Plaster, or other Material.
Coventry Ribbons.	
Design for Paper Hangings.	
Embossing in Metal or Electro-Plate.	

☞ *Medals will also be awarded for other Articles which may be deemed worthy of especial distinction.*

All objects must be the work of the Exhibitor. In cases where Articles are the property of Employers, the name of the firm permitting their exhibition will be given in the Catalogue.

FORMS OF APPLICATION FOR SPACE may be obtained by sending a stamped and directed envelope to the Secretary, Mr. W. J. WATTS, 7, Birchmore Terrace, Cardington Street, Hampstead Road, London, N.W., or by application to any of the Honorary Agents. To be returned, filled up, on or before June 30.

Steamboat Excursion to

HAMPTON COURT, Richmond, Kingston, or Teddington, by one of the new Citizen Steamboats, with improved Saloon Accommodation. This boat will leave LONDON BRIDGE (weather permitting) every SUNDAY and MONDAY, at Ten o'clock, calling at all piers, and returning in the evening.

Kew Gardens.—These Mag-

nificent Gardens are Open to the Public every day, including Sunday. Admission free. Boats from CHELSEA to PUTNEY, Hammersmith, and Kew (weather and tide permitting), at low fares. Steamboats from London Bridge and all intermediate piers to Chelsea, every Ten minutes.

Steamboat Excursion to

RICHMOND and TWICKENHAM AIT every SATURDAY AFTERNOON, by one of the new Citizen Steamboats, containing elegant Saloon Accommodation, which will leave LONDON BRIDGE (weather permitting) at 2.30 o'clock, calling at all piers, and returning in the evening. [1

BROWN AND POLSON'S

PATENT CORN FLOUR,

Recommended for

CHILDREN'S DIET. [2

CHELSEA WORKING MEN'S CLUB,

238, King's Road, Chelsea.

Wanted, a Care-taker for the

above Club. He must be a married man, and without children, and must be able to produce satisfactory testimonials as to character and intelligence. He would only be required to be in attendance during the evening. Small remuneration, with Apartments, Coals, and Gas, are offered.—All further particulars may be obtained on personal application to the Honorary Secretaries at the Club, either on Monday, the 25th June, or on Monday, the 2nd July, between the hours of eight and nine o'clock p.m. [33

LEATHER, UPPERS, AND SHOE MERCERY.

I. W. McLellan, Leather Mer-

CHANT, 47, Lambeth Walk, S., has one of the largest and cheapest stocks in London.

Prime 36 lb. Buenos Ayres butts, 1s. 6d. per lb. Prime 32 clean foreign, 1s. 3d. per lb. A very prime lot of enamelled seals, 4s. per lb. Men's and Women's soles, 1s. 4d., 1s. 6d., 1s. 8d., 2s. Scotch hides, 1s. 10d. per lb. Elastic webs, direct from the loom. Price List free by post.

KIT AND GRINDERY, WHOLESALE AND RETAIL.

Superior Brads, French and

STEEL, 7 lbs. for 1s. 1d. Superior ink, 9d. per gallon. Copper toes, 2s. 2d. per doz. Men's iron-bottomed lasts, 2s. per pair. 20 lbs. clean English butts, 1s. 6d. per lb. Agent for Prout's Dubbin. 21 best plates, 5s. 6d. per gross. Scotch hemp, 2s. 7d. per paper. A liberal discount to all purchasers over £1, at I. W. McLELLAN'S, Lambeth Leather Warehouse, 47, Lambeth Walk, S. [3

TO CURRIERS AND BOOTMAKERS.

Dubbing, Direct from France,

to be had only at the COMPTON LEATHER and CLOSED UPPER WAREHOUSE, 43, Frith Street, and 48, Old Compton Street, Soho, London. This Dubbing is identically the same as that used by the best Curriers in Bordeaux, and for dressing Kips, &c., is invaluable. Boots and Shoes are particularly benefited by its application. Sold wholesale and retail. By its frequent use the durability of all kinds of leather is greatly increased. [4

National Institution for

DISEASES OF THE SKIN, 10, Mitre Street, Aldgate. Physician, Dr. Barr Meadows, 8, Hinde Street, W. Open on Monday and Thursday Evenings from Five till Eight, and on Wednesday and Saturday Evenings from Seven till Nine. Free letters are available for necessitous applicants. THOMAS ROBINSON, *Hon. Sec.* [5

The Original Chlorodyne,

Invented by R. FREEMAN, Pharmaceutist, is allowed to be one of the greatest discoveries of the present century. It immediately relieves and cures Coughs, Colds, Consumption, Influenza, Bronchitis, Asthma, Whooping Cough, Cramp, Spasms, Gout, Diarrhœa, Dysentery, &c.

EARL RUSSELL communicated to the Royal College of Physicians and to Mr. Freeman that he had received information from Manilla that the only remedy of any use in Cholera was Chlorodyne.—*Lancet*, Dec. 31st, 1864. See *Times*, Nov. 14th, 1865.

Freeman's Original Chloro-

DYNE.—The *Medical Times*, Jan. 13th, 1866, states—"It has an immense sale amongst the public, and is prescribed by scores of orthodox medical practitioners, and, of course, it would not be thus singularly popular did it not supply a want and fill a place."

Freeman's Original Chloro-

DYNE engraved on the Government stamp outside every bottle. Sold by the Inventor and Manufacturer, R. FREEMAN, 79, Kennington Park Road, London, S., and most Chemists. In bottles, ¼ oz., 1s. 1½d.; 1¼ oz., 2s. 9d.; 10 oz., 11s.; 20 oz., 20s.

Caution! Beware of spurious, deceptive, and dangerous imitations. Ask for Freeman's Original Chlorodyne, and see that you have none other. [6

THE WANZER.

Prospectuses post free.

4, CHEAPSIDE, LONDON, E.C.

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BY HER MAJESTY'S ROYAL LETTERS PATENT.

Morrison's Archimedian

PEN-FOLDER for the Sewing Machine and the Finger. Manufactured solely by

JOSEPH GILLOTT,

Metallic Pen Maker to the Queen, Victoria Works, Graham Street, Birmingham.—Drawings and particulars forwarded on application. [7

Gathered from the Waters.

For ages past there have been running from the various mines in Cornwall large streams of water. About the year 1857, it occurred to a miner to test one of the streams to see if it contained Copper: it was found very productive. Since that the works have been carried on successfully, and now 100 tons of Copper, or more, are gathered from the water every year. The works have undergone the examination of many experienced persons, and a Company has been formed to work the streams upon scientific principles. The Company seeks to acquire the right to work the whole of one large stream, and desires to secure some additional Capital for the purpose. The Company is formed upon the principle of Limited Liability. There is no risk whatever in carrying on the works, and the profit is known to be very large, and certain of making good Dividends for the Shareholders. The Shares are of £5 each, but only £1 is called—10s. on application, and 10s. on allotment. More than £3,000 is subscribed for privately, and early application should be made for the remaining Shares. Any one desiring a safe and profitable investment cannot do better than take Shares in this Company.

Fuller information can be obtained from the Secretary of the Copper Precipitating Company (Limited), Office, 8, Warnford Court, Throgmorton Street, London, E.C. [8

Arnold and Sons' Improved

IMPERCEPTIBLE TRUSSES,

Acknowledged to be the lightest and most comfortable wearing Truss yet invented. ELASTIC STOCKINGS, KNEE CAPS, &c., for Varicose Veins, Weakness, &c. Abdominal Belts, Railway Conveniences, Crutches, Artificial Legs, Hands, and Arms, and every description of Surgical Appliance manufactured by

ARNOLD AND SONS,

35 and 36, WEST SMITHFIELD, LONDON.

N.B.—Directions for Measurement forwarded upon application by letter. [9

Happy Homes for Working

MEN, AND HOW TO GET THEM. By the Rev. Dr. Boco. Price, in paper covers, 1s. 6d.; bound in cloth, 2s. London: Cassell, Petter, and Galpin, Ludgate Hill, E.C. Edinburgh: James Nichol.

TO ENGINEERS, CONTRACTORS, RAILWAY COMPANIES, AND THE TRADE GENERALLY.

G. Richardson, Maker of

Leather Hose, Fire Buckets, Suction Hose, and Leather Bands for Machinery.

54, FRANCIS STREET, BATTERSEA, S.W.

William Chambers, Heraldic

Chaser and Embosser, 4, FOLEY STREET, PORTLAND PLACE, W.

Honourable Mention, Great Exhibition, 1851; *Honourable Mention*, 1853, *New York*.

ROYAL POLYTECHNIC.

Wonderful Illusions.—The

Cherubs Floating in the Air and the Modern Delphic Oracle (J. H. Pepper and Mr. T. Tobin, Joint Inventors), at 3 and 8—Mr. and Mrs. Henri Drayton's Charming Musical and Pictorial Entertainment, illustrating the LADY of the LAKE, at 4 and 9—Prestidigitatorial Magic by Mr. J. Matthews at 7.30—Dugwar's Indian Feats at 2—Lectures by Mr. King and Mr. Stokes, at 12.30 and 1.30—Science, Poetry, Painting, and Music.—Open 12 to 5 and 7 to 10. Admission to the whole, 1s.

Zoological Gardens, Regent's

PARK. Open Daily (except Sunday). Admission, 1s.; Children under Twelve, 6d. (On Mondays, 6d.)

Twopence Monthly,

The Insurance Agent,

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Practical Papers—Striking Illustrations, Incidents, Anecdotes—Articles on Rates and Risks—Instructions on the Formation of Agencies—Reports of Meetings—Statistics, and all the News of the Insurance World.

Published for the Proprietors by THOMAS MURBY, 32, Bouverie Street, London.

LEAFLETS.

The following articles, reprinted from the INSURANCE AGENT, may be had, in Leaflet form, at 3s. 6d. per 100:—"The Successful Agent."—"An Easy Way of Creating Capital"—"A Sketch in the London Tavern"—"A Lesson on Life Assurance."

Alliance Assurance Company.

Head Office, 1, Bartholomew Lane, Bank.

Subscribed capital	£5,000,000
Paid-up capital	350,000
Invested funds, upwards of	1,500,000
Annual income, upwards of	270,000

Fire business at home and abroad.

The full benefit of the reduction of duty given to the insured. The sum of £1,000 on dwelling-house and furniture, formerly charged £2 5s., can be insured under the new arrangement for £1 10s.

New Life Prospectus, with variety of Tables.

Agents in almost every town of the United Kingdom.

F. A. ENGELBACH, Actuary. D. MACLAGAN, Secretary.

Notice.—The renewal receipts for the Christmas quarter are now in course of payment.

52, Cannon Street, and Queen Street, London, June 6th, 1866.

The Annual Meeting of the EMPEROR LIFE AND FIRE ASSURANCE SOCIETIES was held at the Guildhall Tavern, on June 6th, Ebenezer Clarke, Esq., in the chair. The report showed that during the year 1,577 Proposals had been received, amounting to £357,701, and 1,402 Policies had been issued for £317,572. The Claims in the Life Department for the year had been only £3,831, or about equal to the Premiums of the last four months. The Fire claims amounted to £632. A Bonus had been given to the Life-Participating Policy holders from 22 to 48 per cent. on the Premiums previously paid, and a Dividend was declared to the Shareholders at the rate of 5 per cent., free of income tax, and a Bonus of 1 per cent. The total amount of Life and Fire Assurances effected was £2,649,782. Advances had been profitably made on Freehold and Leasehold Securities during the year, and new Plans introduced to meet the requirements of second-class Lives, Members of Building Societies, and others. In consequence of the increase of business, the Directors had found it necessary to enlarge their present offices, and to purchase the lease of their own and the adjoining premises. The retiring Directors, N. J. Powell, Esq., Richard Harris, Esq., Rev. F. Trestrail, and F. Straker, Esq., were unanimously re-elected.

EBENEZER CLARKE, Jun., Sec. [10

London and Lancashire Fire AND LIFE INSURANCE COMPANIES.

Fire Capital, £1,000,000. | Life Capital, £100,000.

London: 73 and 74, King William Street, E.C.
Liverpool: Brown's Buildings, Exchange.
With Home and Foreign Branches and Agencies.

Chairman—F. W. RUSSELL, Esq., M.P. (Chairman of the National Discount Company).

RENEWALS.

Insurances falling due on the 25th December should be paid on or before the 9th January.

No expense in the transfer of Policies from other offices.

Total Income from Premiums for 1864, over £125,000.

W. P. CLIREHUGH, General Manager.

BY ROYAL COMMAND.

Metallic Pen Maker to the QUEEN.

JOSEPH GILLOTT

Respectfully directs the attention of the Commercial Public, and of all who use STEEL PENS, to the incomparable excellence of his productions, which for Quality of Material, Easy Action, and Great Durability, will ensure universal preference. Retail, of every dealer in the world; Wholesale, at the Works, Graham Street, Birmingham; 91, John Street, New York; and at 37, Gracechurch Street, London. [11

£20,000 ready to be advanced by the TEMPERANCE PERMANENT LAND and BUILDING SOCIETY, on Freehold or Leasehold Property, for any period of years not exceeding fifteen, the mortgage being redeemable by equal monthly instalments. Interest (in addition to a small premium), 5 per cent. on the balance each year. Apply to

HENRY J. PHILLIPS, Secretary.

Offices, 34, Moorgate Street, London, E.C.

Note.—More than half a million pounds sterling have been advanced upon house property alone. [12

Now ready, Second Edition, price 1s., post free.

British Workman's Guide to HOMŒOPATHIC TREATMENT. The object of this Work is to render the domestic practice of Homœopathy in common ailments as simple as possible, to meet the requirements of the Working Classes.

Henry Turner and Co., 77, Fleet Street, London, E.C.; and 41, Piccadilly, Manchester. [13

How to Purchase a House for Two Guineas per Month, with Immediate Possession, and No Rent to Pay. Apply at the office of the Birkbeck Building Society, London Mechanics' Institution, 29, Southampton Buildings, Chancery Lane.—HOW TO PURCHASE A PLOT OF LAND for 5s. per Month, with Immediate Possession, either for Building or Gardening Purposes. Apply at the office of the Birkbeck Freehold Land Society, London Mechanics' Institution, 29, Southampton Buildings, Chancery Lane.—HOW TO INVEST YOUR MONEY WITH SAFETY, at £5 per Cent. Interest. Apply at the office of the Birkbeck Deposit Bank. All sums under £50 repayable upon demand. Current Accounts opened similar to ordinary Bankers. Cheque Books supplied. All cheques exempt from Stamp Duty.

Office Hours from Eleven till Five daily; on Saturdays from Eleven till Two, and on Monday evenings from Seven till Nine.

A small Pamphlet, containing full particulars, may be obtained Gratis, or sent Post Free, on application to

FRANCIS RAVENSCROFT, *Manager*. [14

The Planet Permanent Building and Investment Society, Established by Act of Parliament, July, 1848. Annual Income exceeds £200,000. Offices, 39, CITY ROAD, FINSBURY SQUARE, LONDON, E.C. The SEVENTEENTH ANNUAL MEETING was held September 12th, 1865. The Directors reported a large Augmentation of Business, and an Accumulation of Profits, which allowed a Bonus of £10 per cent., making the Dividend for the past year £15 per cent. The sum of £12,505, the Balance of Profit, had been carried forward for future division. The Assets of the Society had been increased during the year by £106,981. The Directors confidently reaffirm that—first, as a mode of investment at once secure and profitable; secondly, in the easy terms to Borrowers, and the facilities afforded for their transactions; thirdly, in the Equitable Adjustment of Repayment and Interest; fourthly, in the mode of Redemption; and, lastly, in the moderate fixed Law and other Charges, this Society stands alone. Shares, £50; Entrance Fee, 2s. 6d. per Share. Deposits to any amount—upon which no entrance fee is charged—may be made. Interest, £5 per cent., repayable on fourteen days' notice. Prospectuses and all further information may be had of EDMUND W. RICHARDSON, Secretary.

Offices—39, City Road, London, E.C. [15

EMIGRATION.

NEW ZEALAND AND AUSTRALIA.

Free Grants of Forty Acres of Land and Assisted Passages.

Houlder Brothers and Company's Regular Semi-Monthly Line of Clipper Ships dispatched from the London Docks.

MELBOURNE LINE,

Taking Passengers to Adelaide, Portland Bay, Hobart Town, Launceston, New Zealand, &c.

Mediator	2,000 5-6th	June 21.
Red Rover	2,100 A 1	July 7.
Lucibelle	2,000 A 1	July 21.
Golden Sea	2,500 A 1	August 7.

SYDNEY LINE,

Taking Passengers to Newcastle, Twofold Bay, and all the New South Wales Ports, Queensland, New Zealand, &c.

Empress	2,500 A 1	June 25.

ADELAIDE LINE.

Prince of Wales	2,500 A 1	June.
Verulam	1,200 A 1	July.

STEAM TO AUSTRALIA AND NEW ZEALAND.

Mataura (s.s.)	3,000 A 1	June.

The advantages of these lines are:—The fine class of the Vessels, which are specially selected for their adaptation to the voyage. Constant, regular, and punctual dispatch. Provisions not only most liberally supplied, but of the best description, including live stock, poultry, &c., without limit for the first-class passengers. General arrangements such as always to secure the approbation and recommendation of all classes of the passengers.

For plane of cabins, rate of passage, &c., apply to the country agents of the Line, or to

HOULDER BROTHERS & CO.,
146, Leadenhall Street, London, E.C. [16

CHEAPEST EMIGRATION TO AMERICA, £5 5s.

New York, by Cunard AND NATIONAL STEAMERS, WEEKLY, £5 5s., cabin, £15 15s.; Canada, £6 6s., cabin, £15 15s.; Baltimore, £5. Sailing Ships to New York, £4.

R. MONTGOMERIE and CO.,
5, Ingram Court, Fenchurch Street, E.C. [17

Cheapest Passages to all the COLONIES.—STEAM and SAILING to NEW YORK, BOSTON, QUEBEC, AUSTRALIA, NEW ZEALAND, and all other parts of the World.—Apply to PEARCE and CO., Shipbrokers (First Floor), 100, Leadenhall Street, London.

Assisted Passages to New ZEALAND granted to Carpenters, Bricklayers, Farm Labourers, Navvies, Domestic Servants, &c.—Apply to PEARCE and CO., 100, Leadenhall Street, London. Particulars, Two Stamps. [18

B. Prew's Wardrobe.

At this splendid new building you'll see a display
Of all the new fashions, the first of the day;
If well dress'd you'd be, and at lowest price, too,
"Then come to my wardrobe," says Benjamin Prew.

If frock or Oxonian you should require,
And really are choice in this part of attire,
Wishing best of material, with style that is new,
"Then come to my wardrobe," says Benjamin Prew.

If a coat you should want, for business or dress,
Or a waistcoat of which you'd approval express,
Or trousers to fit, cut on system quite new,
"Then come to my wardrobe," says Benjamin Prew.

If you have any boys, and would see them well dressed,
In clothes to wear well, and become them the best;
Or want Knickerbocker suits for young children, too,
"Then come to my wardrobe," says Benjamin Prew.

Every one buys of Prew, so well known is his name.
If you study your int'r'st you'll just do the same;
If you'd dress in the fashion, and save money, too,
"Then come to my wardrobe," says Benjamin Prew.

Children's Knickerbocker Suits from	12s. 6d.
Boys' Eton, Harrow, and Rugby Suits	21s. 0d.
Boys' Cricketing Suits	21s. 0d.
Gentlemen's Overcoats, from	12s. 6d.
Ladies' Riding Habits, Liveries, &c.	

B. PREW, Tailor, Hatter, Hosier, and General Outfitter, the great Metropolitan Wardrobe, 294 and 295, High Holborn (15 doors west of Chancery Lane). [19

John Moseley and Son, 17 and 18, King Street, and 27, Bedford Street, Covent Garden, London, W.C., CUTLERS, GENERAL MERCHANTS, and MANUFACTURERS OF MECHANICAL TOOLS—Saws, Tool Chests, Turning Lathes, Garden Tools, &c., Wholesale, Retail, and for Exportation. Established a Hundred Years. Reduction in the Price of Moseley's Warranted Saws, Genuine Ganged Plates:—

		£	s.	d.	
28-inch Best Half Ripping Saw	...	0	8	0	each.
26 ,, Hand Saw	...	0	7	6	,,
14 ,, Brass-back Sash Saw...	...	0	8	6	,,
14 ,, Iron-back ditto... ...	...	0	5	6	,,

Saws same make, Second Quality (by some called best) of each of the above, 1s. less.

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INTERIOR OF GILLOTT'S PEN MANUFACTORY, BIRMINGHAM. (*See page* 402.)

The Judgment on Jamaica.

THE copious blue-books on the Jamaica insurrection presented to Parliament, have been followed by a despatch from the Right Hon. Edward Cardwell to Lieut.-General Sir H. K. Storks, Captain-General and Governor-in-Chief of the island of Jamaica, which embraces the official sentence of the Government upon Governor Eyre.

Nothing quotable can better indicate the stupendous nature of the inquiry which has been instituted, than the fact that Mr. Cardwell begins by quoting question 46,634. Mr. Cardwell lays down a very clear doctrine as to the province of the military during martial law. The excuse for the wholesale floggings, burning of houses, and hangings, was the advantage which the terror of the very name of martial law was calculated to inspire, and that examples of severity helped to render good government possible. Mr. Cardwell states that "future good government is not the aim of martial law. Example and punishment are not its objects; its severities can only be justified when, and so far as, they are absolutely necessary for the immediate re-establishment of the public safety." Here we get a wholesome and intelligible doctrine, which limits the use of the murderous knife of the military. It is not their business to create "examples," that is the business of juries and civil judges. It is not the business of the military to cater for "good government;" with these political functions they have nothing whatever to do. Their sole business is to ensure the "public safety." They may knock down or shoot people in arms, and arrest those likely to use them; but they have no right to kill but in pure self-defence. The official statement of this doctrine is condemnation of the general acts of the Jamaica authorities. Mr. Cardwell states that "Her Majesty's Government are compelled to express their concurrence—1. That the punishments inflicted were excessive. 2.

HARDENING THE PENS. (*See page* 402.)

That the punishment of death was unnecessarily frequent. 3. That the floggings were reckless, and at Bath positively barbarous. 4. That the burning of 1,000 houses was wanton and cruel."

That, indeed, is a remarkable line—"That the punishment of death was unnecessarily frequent." Surely, murder was never described in gentler terms; for every unnecessary execution is murder. Governor Eyre's defence was, that though he authorised martial law, he was not aware of what was taking place during its continuance. Mr. Cardwell observes that, "if it were deemed necessary to continue martial law, it was the duty of the Governor to inform himself of the character of the proceedings taken, and to put an end to all proceedings which were not absolutely necessary, and therefore justifiable on the ground of necessity. Her Majesty's Government cannot, therefore, hold the Governor of the colony irresponsible either for the continuance or for the excessive severity of those measures."

With respect to the trial and execution of Mr. Gordon, Mr. Cardwell says—what is undoubtedly serious, and fixes for ever the character of the acts—that "they are events which Her Majesty's Government cannot but deplore and condemn;" and he orders his despatch, and the judgment it contains, to be published in the colony of Jamaica. It states that the British Government "would not discharge their duty by advising the Crown to replace Mr. Eyre in his former position as Governor." What ulterior proceedings it will now be the duty of Parliament to take in the matter, we will not anticipate by conjecture. We content ourselves with expressing satisfaction that Mr. Cardwell, whose amiable and gentle disposition must have rendered the task he has performed very repugnant to him, has, nevertheless, discharged his duty with honesty and firmness, and has written his despatch in terms which will assure the people of Jamaica that their hope of justice from the Crown of England has been well-founded, and will restore the character of British colonial government to its rightful place in the eyes of the world.

Pens and Pen-making.

Who was the inventor of the steel pen? We fear that his name, like that of the individual who ate the first oyster, is destined to remain unknown to the millions who, otherwise, would be eager to render their acknowledgments to their great benefactor. What should we do without steel pens? Why, it might as well be asked, What should we do without the printing-press? Like the railroad and the electric telegraph, steel pens have become one of the necessities of the age. In the days when four-wheeled coaches were deemed the *ne plus ultra* of locomotion, and when a journey from the metropolis to the midlands was a task involving several days' preparation, folks were content to use quills, which they cut and mended at their leisure. But after a time men grew weary of continually mending pens, and so, after many attempts and failures, the steel pen came into use—not the article with which we are now familiar, but one mounted in a bone case, and known as "Wise's Pen." This was at the beginning of the present century; but there is reason for believing that the invention was of earlier origin, steel pens having been imported, about 1780, from Tunis and Tripoli into Holland.

It was not, however, until a comparatively recent period that steel pens came into general use, and to Mr. Joseph Gillott, the celebrated manufacturer of Birmingham, belongs, in a great measure, the honour of having rendered the steel pen cheap, good, and popular. His establishment, in Graham Street, Birmingham, may fairly claim to be ranked among the "Workshops of the World," for its productions are famous over the whole face of the globe, while to the commercial man, whether at home or abroad, a "Gillott" is almost as indispensable as his "Bradshaw." A wonderful place is this pen manufactory. It is an immense brick building, described by a bewildered "special correspondent" as being an edifice "which looks something like a large asylum, a little like a manufactory, and more like an hospital than either," with which graphic description the reader must be content, for our business is not with the outside, but the inside of the place.

Very interesting is it to follow the steel from the moment of its being cut into long strips until it issues forth in the shape of a "magnum bonum," or the well-known "swan quill." The steel, which is made from the best Swedish iron, is cut into long thin strips of the requisite width by a machine made for that purpose, and which in appearance resembles a hand chaff-cutter. The steel strips are then subjected to a series of processes, by means of which they lose their hardness and brittleness, and are freed from the oxide with which they were covered. They are then "rolled" until they become of the proper thickness. During this operation they are occasionally dipped in oil, the rollers being kept cool by means of a small stream of cold water constantly falling on them.

The long, thin strips of white, glittering steel are next taken to one of the long workshops which form the upper part of the factory, and which are remarkable for their light, warm, and well ventilated character. These rooms lead one into another, and are filled with crowds of clean and busy workers, principally women and girls, the number employed being between 500 and 600—thus solving one of the most important questions connected with the healthy and remunerative employment of women. Entering one of these rooms, we find it filled with a number of presses, at each of which a female is seated busily employed in the cutting out of "blanks," an operation which will be easily understood by a reference to the annexed diagram, which shows a portion

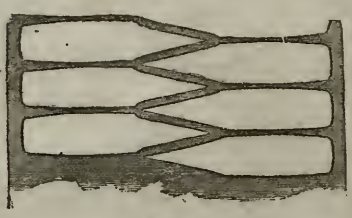

Fig. 1.

of the steel ribbon after the blanks have been cut out of it. The steel is placed under the press, and by a rapid yet methodical movement the blank is accurately cut. We subjoin illustrations of three different forms of blanks, the largest being intended for a barrel pen, such as the

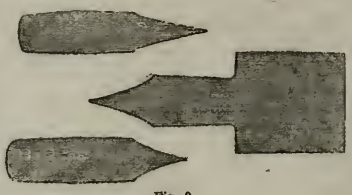

Fig. 2.

magnum bonum. The swiftness of the punching operation is almost marvellous, especially when we consider the seeming perplexity of the process. The steel has first to be carefully adjusted on the die, then the punch has to be brought down, and as each blank is cut out, care has to be taken to avoid waste. The number of blanks generally cut in one day by a female is 300 gross, and as each gross contains 144, the gross total thus cut would be 43,200. The operation strongly resembles the old schoolboy trick of moving the hand rapidly backwards and forwards under a regularly descending penknife. For one description of pen a steam press is used, but for all the others, presses worked by hand labour alone are employed.

The pens are next carried from the blank-cutters to the *side-slitters*; after which they are pierced, the two operations sometimes taking place together. A kind of annealing process is then gone through, for the purpose of preparing the blank for being stamped. The stamping-press is exquisitely contrived, and the girl who works it, places the flat blank side slit on the die, her foot works a treadle, and the next moment out comes the pen impressed with the required inscription. After this, the blank is *snappered*, or rendered of a half cylindrical shape, and, in the case of the magnum bonums, to have the broader part of the blank made completely round. Up to this point, the pens are in a soft state, and, for practical purposes, useless. They have the form of the finished article, but nothing more. To render them of the requisite hardness and elasticity, they are taken to a room in the basement of the building, where the furnaces are kept glowing in a manner which makes the atmosphere unbearable to those not used to it. Here the pens are placed in iron boxes, each capable of holding several gross. The boxes are lifted by means of a pair of tongs into the furnace, where they remain for about half an hour, after which they are taken out, and the contents dexterously emptied into a tank of oil. After remaining for some time in the oil, they are strained by the inner tin in which they are placed, and which is pierced with holes, being withdrawn from the outer one. They are then placed in a kind of revolving sieve, and the oil which clings to them drained off by centrifugal force. So far, good. Now, our pens have to be cleansed. This is accomplished by putting them in a number of barrels, which are made, by means of steam power, to revolve on a common axis. These barrels are filled with sawdust, which is found to be well suited for the process. The cleaning process is followed by that of scouring. A second series of barrels are filled with pounded casting-pot and water, together with a little quicklime to prevent rusting, and the pens being placed in this mixture, are whirled rapidly round for the purpose of removing the scale left by the action of the fire. This done, they are removed to the grinding-room, where the ear is saluted with a noise resembling the hissing of a forest of snakes. Each pen is held in a pair of peculiarly-constructed pincers for a few seconds against a wheel of birch-wood, cut across the grain, and carefully loaded to prevent jarring. Each wheel is covered with leather coated with glue and emery, presenting a perfectly smooth surface. The pens are ground, firstly, longitudinally; secondly, crosswise, so as to ensure the requisite amount of elasticity being obtained. The workers, principally females, display great expertness in this delicate and seemingly difficult process.

The pens have now to be coloured, much of their popularity depending on the beauty of appearance possessed by them. They are put into a kind of coffee-roaster, consisting of a simple cylindrical barrel, raised above a clear fire, and worked by means of a long handle. Here they are subjected to a regulated degree of heat, until they acquire the blue or brown tinge required, when they are removed, and allowed to cool upon an iron plate. Five minutes suffices to give the pens a bronze colour, and ten minutes the well-known rich purple colour. The degree of hardness possessed by them is denoted by the lightness of the tint, and its diminution by the blueness which supervenes. After being coloured, the pens are placed in a solution of shellac in spirits of wine, and exposed to the open air, so that the spirit may evaporate, and leave the shellac in the form of a delicate white incrustation on the pens. This incrustation, on being subjected to a proper degree of heat, melts, flows over the pens, and presents, when cool, a beautiful enamelled surface.

The pens are subsequently separated, and conveyed to a room where the final process—that of slitting—is performed, after which they are taken to the warehouse, where they are sorted, arranged, and placed in the fancy boxes in which they are usually sold. A box of common pens, which in 1830 cost 8s., can now be obtained for 6d.; at the same time the quality is much superior. Mr. Gillott employs a large number of hands, who find plenty to do in converting the tons of steel into countless numbers of pens. Well may it be said that the day of little things is not to be despised. Pens, like pins, are insignificant-looking objects, but they play an important part in our economy, laying the basis of great fortunes, and affording employment to thousands of men, women, and children.

*Landlord and Tenant.**

LODGINGS.

It is a large proportion—perhaps, a considerable majority—of our working men who do not occupy premises entirely themselves, but either let or hold apartments. For the benefit of such of our readers as may be of this number, we will therefore briefly explain the law as to Lodgings.

It is always well, in taking or letting apartments, to have a written agreement, that there may afterwards be no dispute as to the terms on which they are let; but where there has been no such agreement, it is the rule that the period at which the rent is paid, whether weekly or otherwise, is the term of the tenancy, and corresponding notice to quit must be given. But if the lodgings be merely taken for a short and definite term, with the understanding that the lodger will quit when that term has expired, no notice is necessary. The forms of agreement and notice between landlord and tenant which we have given in a recent number are applicable, with verbal alteration, to the letting of apartments.

We have already mentioned, when treating of the subject of Distress, that the goods of a lodger may be distrained by the landlord for rent due from the tenant; they may also be distrained for the tenant's taxes; and it is, therefore, advisable in all cases to ascertain, if possible, the position of the person from whom the apartments are taken, and whether he is free from arrears.

The tenant or occupier of a house may distrain the goods of his lodger for rent overdue, in the same manner that the landlord can exercise that power; and the same rules of law apply in both cases. The door of the lodger's apartment, however, may not be broken open to levy a distress, for that is considered his outer door. If there be any inner apartments, and admission be gained to the first by proper means, those inner apartments may be forcibly entered.

The householder can prevent the goods of the lodger being taken off the premises while any rent is due; but if the lodger be allowed to remove, his landlord cannot follow the goods, but must proceed for the rent in the county court, as for an ordinary debt.

In the case of furnished apartments, the sum which the lodger may agree to pay for their use is not considered by the law as entirely rent, and therefore the householder is not allowed to distrain for the whole amount on property his lodger may possess. It is held that a portion of the sum is for occupation of the apartments, and a portion for the use of the furniture; and it is only for the former that the householder may distrain. It is therefore well, in letting furnished apartments, to divide the amount that may be payable, assigning so much for use of furniture, and placing moneys received to that account until it is clear.

If the occupant of furnished apartments absent himself, and there is reason to believe that he has left without intention to return, a police constable may be summoned, the apartment broken open in his presence, and any goods or property of the lodger that are left behind may be secured. Then, after fourteen days' notice has been given by advertisement in the *London Gazette*, the property so taken may be sold, for payment of the rent in arrear, unless the lodger previously appear to discharge the claim. The surplus of such a sale, after deducting the rent, must be reserved for the lodger on demand.

If a person occupying apartments should refuse to give up possession, the householder should serve him with proper notice to quit, with an additional clause inserted, to the effect that on the expiration of the term such a sum will be charged as additional rent, if possession be still retained. If this is not sufficient to induce the lodger to leave the apartments, a summons may be obtained at the registrar's office of the district County Court, and after a hearing of the case, the judge may make an order to the high bailiff of the Court to obtain possession for the landlord.

We will conclude these papers on the law of landlord and tenant by a reference to the subject of

FIXTURES.

All fixtures that may be taken by agreement on entering premises of any kind, should be included in a written list, with the value of each article attached. This is well not only for the prevention of dispute, but also in case of transfer afterwards to an in-coming tenant.

Any fixture attached or let into the freehold in such a manner as to form a part thereof, cannot be removed. It has been held that summer-houses, green-houses, &c., attached to posts fixed in the soil, are irremovable, though the same, if resting on and not let into a brick foundation, may be taken away.

Buildings and erections put up for the purposes of a trade or calling, are removable, if built upon brick or stone foundations, and not in any way let into the soil, or attached by mortar, &c., to the original building.

With regard to the interior of the premises, any chimney-pieces, shelves, &c., put up for ornament or domestic convenience, may be removed, but the property and the previous fixtures must be left in the state in which they were before such conveniences were attached, or the tenant will be liable to the landlord for dilapidations. Shelves, &c., are only removable if affixed by screws; if nails are employed, they become the property of the landlord.

Lastly, all fixtures which the tenant may claim must be removed before the expiration of the tenancy, and cannot afterwards be taken without the express consent of the landlord.

* Concluded from page 396.

WILD ANIMALS.

From the last annual report of the Zoological Society of London, it appears that the number of animals living in the Regent's Park menagerie at the end of 1865 was 1,956, being 98 more than at the corresponding period of the preceding year. Among the acquisitions made during the year were some of especial interest. Perhaps the most important among them is a pair of African elephants, obtained in the summer of 1865, which have supplied what has long been rather an important desideratum in the society's series of mammals. Although the Asiatic variety of this huge creature has always had one or more representatives in the menagerie, the measures adopted by the council to procure a specimen of the conspicuously different African species had not previously proved successful. Up to the summer of last year, it is believed that no example of the African elephant had ever been introduced alive into this country, at any rate since the time of the Romans, whose elephants are generally considered to have been of African origin. In July last, however, the council succeeded in obtaining by exchange a young male of this animal from the Jardin des Plantes of Paris, to which institution two specimens, both of this sex, had been some time previously presented by some dusky potentate in the interior of Africa, desirous of propitiating his formidable neighbours. Soon after the receipt of the male African elephant, two females, singularly enough, came into the London market, one of which was likewise secured by the council for the sum of £500. The society's collection therefore now contains a pair of African, as well as a pair of Indian elephants. It likewise includes a pair of hippopotamuses, a pair of Indian rhinoceroses, four giraffes, and six or seven elands, forming such a collection of the larger and more bulky mammals as has never before been brought together in one place; not to mention the various series of lions and tigers, and other better-known animals, which are maintained in their accustomed numbers. Another conspicuous addition that has lately been made to the Regent's Park collection is the sea bear, or, as it is more correctly called, the eared seal, belonging to the genus *Otaria* of naturalists, a single specimen of which was acquired some months ago, and has deservedly attracted much attention. The form of this animal, although well known to distant navigators, is one altogether novel to those who have not visited the Antarctic regions or the Pacific coasts of America, and its actions, as exhibited by its keeper, are as *bizarre* and grotesque as anything which it is possible to conceive. The mode of progression of the *Otaria* is utterly unlike that of the seals of the Atlantic, which are only enabled to move on *terra firma* by the contraction and expansion of the abdominal muscles, and it more nearly resembles that of the walrus. The present specimen was captured by the same man who has now the charge of it, and to whom it seems to be devotedly attached, on the shores of Terra del Fuego, near Cape Horn.

The Paris Exhibition of 1866.—A new order of reward has been established in connection with this institution; this reward is to be bestowed on institutions or associations, whose object is exclusively the establishment of a better understanding between the workmen and their employers. One single prize of 100,000 francs for the individual, the establishment, or the locality which has best succeeded in realising this intention, is offered, besides ten other prizes of 10,000 francs each, to be distributed amongst those who have in a minor degree co-operated in this great work.

*The Foresters.**

HOW THE FORESTERS HELP A BROTHER.

Perhaps it may be asked what the Order of Foresters has accomplished greater than "benefit societies" or insurance offices? We will endeavour to answer the question. These societies simply agree to pay a certain sum in sickness and at death; and as long as the society is enabled to perform its contract in this respect, the end is accomplished. So, probably, thought the Foresters at one time; but as time rolled on—as the Order increased—it became evident that man's wants are not confined to these narrow limits. The great fact became apparent that man is "a creature of circumstances"—one day borne on the wings of prosperity, and the next smitten down by the rude blast of adversity; one day mingling with the companions of years—crossing the scenes of "boyhood's home," enjoying all the pleasures and friendships of his native place—and the next, at the caprice of his employer, by the vicissitudes of trade, or other emergencies that perpetually dog the path of not only the working man, but the tradesman, he is compelled to seek among strangers, in some distant locality, wherewithal to maintain himself and family. Old associations perhaps induce him to linger till the last moment in the neighbourhood where he had formerly gained an honourable livelihood; but the pressure of circumstances soon compels him to seek further ere he can again settle down to employment or business.

Now, this is the gist of the whole question—Of what avail, at that hour, to him is the insurance office or the isolated benefit society? Why, instead of being a benefit, it is absolutely a drag to him—that is, if he intends to keep up his subscription; but he sees little practical utility in doing so, because he may never return to his former locality; and the probability is, that his subscription for years may be forfeited and lost to him.

Now, it is precisely in this dilemma that the Foresters lend a helping hand to a brother. Whereas other societies of the kind alluded to would leave the member in the middle of the stream, literally, "to fish for himself," the Order safely lands him on the other side with a few little fishes and a loaf in his pocket. Previous to starting on his weary and almost unknown journey, the forlorn member is provided by his Court with "travelling checks," each of the value of 1s. 3d. One of these he can cash daily in any locality where a Court is held, and there is scarcely a town or village of the United Kingdom that does not contain one or more. He goes to the Court, and gets his check cashed, and also receives contributions from the Court to which he applies; there being a *Relief Fund* for that very purpose in most Courts of the Order. Here, instead of being among strangers, he finds the welcome hand of friendship at once held out to him. He finds himself among many in his own trade or business, who readily give him every requisite information as to obtaining employment. He knows at once whether to stay, or still to push further on; and if the latter is the alternative, an additional sum is generally collected, to help him on his way. Should he fall ill, still he is sheltered, though far from home, and all his wants attended to. The brothers in the locality where this misfortune may overtake him visit him, pay his sick claim, supply medical attendance, and, in fact, treat him in every respect as though he were a member of their own Court; and, in the event of death, his remains are decently interred in their final resting-place.

As observed by Mr. Watkins, from whose admirable pamphlet we have borrowed many hints—Where is the insurance society or benefit club that can present advantages like these? Were he a member of either of these, he would be among strangers in the hour of trouble, and, perhaps, the only shelter for him would be the poor-house or union. Are not these sufficient inducements—founded on positive facts—for every man to give preference to an Order displaying such forethought in meeting every ill that flesh is heir to? And is it surprising, now that these facts are so widely spread, that every village and hamlet should aim at establishing Courts in all directions? That even in Australia, America, India, and other distant colonies and

* Concluded from page 375.

possessions where the English flag waves in its might, the Ancient Order of Foresters gathers recruits, ever augmenting—Forestry everywhere following closely in the wake of commerce and emigration—opening Courts and forming Districts, and receiving a brother from Old England in the same manner, and with the same friendship, that he finds at home—in all this, we say, there is nothing to surprise us; on the contrary, it is only the natural consequence, the natural effect of an adequate cause, by the very nature of things, and in accordance with the economy of Providence.

But Forestry did not, and does not, stop there. As Courts increased, Districts had to be formed; and when men of practical experience were thus brought together, it was still found that other contingencies had to be met—that a still greater field for the extension of philanthropy was before them. Members became aware of the fact that their widows and orphans required protection, and that this could only be accomplished by the strenuous efforts of the members whilst living. What thinking man could quietly sit down and imagine his labour done, when the fact was before him that he should only leave his widow and orphans £12 or £13 to support them in the event of his death? Men had seen numerous happy homes broken up, and the widows and orphans of a respectable brother tossed about on the rude waves of adversity, and at last taking refuge in the poor-house.

Such a possibility had to be provided against. Already, in the London United District of Foresters alone, there are hundreds of widows and orphans receiving assistance—very material aid, if not entire support; and the expenditure of this District in this item has risen from £1,200 per annum in 1859 to over £5,000 at the present time.

It is true that the sum of 2s. 6d. per week for each widow, and 6d. for each child under fourteen years of age, is a small sum; but it at least keeps a shelter over their heads, and the amount will, doubtless, be augmented with the increasing prosperity of the District.

In connection with this subject, we may state that, from the large surplus fund in hand, this District contemplated the creation of an Almshouse, or Retreat for its indigent members and their widows and orphans; but, considering the great reduction of the funds that would result from the cost of the building and its management, the scheme was abandoned, and, we believe, very properly, on that score alone, but still more in consideration of the fact that all such places are objectionable on account of their constraint, and the absolute necessity for enforcing those stringent regulations, without which they must become most objectionable. With a small but certain income, the poor easily find comfort amongst their relatives and friends, and can fructify their labour for their own benefit, and the advance of the social state in general. It will certainly be always infinitely better to save the cost of brick and mortar in order to support human flesh and blood.

Such, then, is Forestry. Its laws are just and liberal, and fashioned after the purest models of government; for the greatest amount of individual liberty consistent with the general welfare of the whole body is secured to every member. Assumption of power and arrogance of demeanour may be immediately checked by the deposition of the presumptuous; the rights of every individual member are scrupulously respected and guarded; each individual has equal rights and privileges; merit alone is the only medium through which posts of honour may be arrived at; and no artificial barriers are permitted to prevent virtue and talent from occupying their fitting station. There is no secrecy about Forestry; it courts inquiry by the publication of numerous reports and its "Directory," which is the annual history of the Order. Moreover, it encourages literature amongst its members by the publication of the *Foresters' Miscellany; or, Quarterly Review*, which is the organ of the Order.

Besides being united to render less trying the vicissitudes of human existence, the Foresters likewise assemble to promote the social happiness of the brethren, and relieve their minds occasionally from the pressure of care amidst this fretful state of human struggle, with temperate conviviality. But as home, with all its fond, endearing ties, should have a prior claim to our regard, the exhilarating influence of kind hearts, cheerful songs, and merry company should never be permitted to seduce us from a strict attention to the interests and happiness of our families. Consequently all brawls, absurd and disgusting speech, and drunkenness are utterly interdicted in their assemblies. They inculcate that a good Forester is a man who, though jealous of his rights as a citizen, maintains them in a temperate, manly, and decorous manner; whilst, at the same time, he knows his duties, performs them well, and pays a ready and willing obedience to his country's laws—neither cringing nor servile on the one hand, nor wild and factious on the other. In his private character, as a father, son, or husband, he fulfils the relative claims of these states with scrupulous fidelity. Honest, sober, and industrious ought every member to be; and if there should be one amongst the members who is not so, he is not a good Forester.

Forestry emphatically inculcates thrift and forethought, and triumphantly demonstrates *what can be done with money*. Money, as we are solemnly told, is the root of all evil; and yet without it very little good is found to grow here below. True, it complicates the relations of social life; it baffles the exertions of simple industry; and it is the immediate cause of three-fourths of human crime; and yet, when well applied, it is the mightiest lever of human welfare. Countless generations to come will attest this fact in the case of Mr. Peabody and his more than royal benefaction.

But the *million sterling* or more of property owned by the Foresters, contributed, heaped together by the working men, is of the same nature as a mighty engine of good, and countless generations, in like manner, will have reason to bless Forestry as one of the great and good ideas that Providence sometimes permits and enables man to apply practically for the amelioration of our condition here below.

ANTHRACITE COAL.

Hitherto the difficulty of smelting iron in South Wales with anthracite has proved nearly insuperable, owing mainly to two causes—decrepitation and the consequent production of refractory agglomerations of anthracite dust and slag, whereby the working of the furnace has been either greatly deranged or actually stopped. The late Mr. Crane was the first person who attempted, many years ago, to use anthracite in the smelting of iron, at Yniscedwin Works; and it is at the same works that this important problem seems to have been at length satisfactorily solved by Mr. S. H. Blackwell. Many failures had to be encountered, and the project was about to be abandoned as hopeless, when, fortunately, it was decided that a final experiment should be made. The internal form of the furnace was modified four months ago, and ever since the results are stated to have been entirely satisfactory. The ton of pig iron, of the qualities known as Nos. 2 and 3, is now produced in the furnace with a consumption of less than one ton of coal. The report for the week ending June 10 shows that in that week 128 tons 4 cwt. of pig iron were made with 112 tons 10 cwt. of coal, in the proportion of 1 to 0·88. This is a great achievement, and one which may be justly regarded as of national importance. In the United States there is a fine quality of anthracite, which has been largely applied to the smelting of iron, but with a consumption of nearly two tons of coal to one ton of pig iron. Weight for weight anthracite contains more heat-giving power than any other kind of coal; but as it does not directly yield volatile inflammable gas, like ordinary bituminous coal, it has not been used in reverberatory furnaces, where flame is required. It is, however, demonstrable that by suitable arrangement copious and intensely hot flame may be generated exclusively from anthracite.

Notwithstanding the numerous explosions at the Hazardville Powder Mills, U.S., plenty of men can be had for two dollars per day to fill the places of the killed or injured. So does familiarity breed contempt of danger.

A Collier's Position.—Mr. Warrington W. Smyth, of the Government School of Mines, writes as follows to the proprietor of a steam coal mine in the Aberdare Valley, Cardiff:—"It is a matter of surprise to me that you should meet with any difficulty in obtaining plenty of men, when I see what high wages can be made in your pits. Why, it pays a young man better to cut coal with you than to be an officer in the army or navy, or to be a curate in a church; and, as you give your workings plenty of wind, what with your furnaces and your great ventilating-machine, there is nothing to complain of with respect to unhealthiness of occupation. There are thousands of good fellows in our tin and copper mines who work hard, and often in very poor air, who would be glad enough if they could make half of the amount which an industrious man is able to ensure himself in some of your steam coal collieries."

*Locks and Safes.**

Mr. Chatwood, of Bolton-le-Moors, has recently patented a safe, upon the united merits of which he challenges both popular and scientific criticism. The Chatwood safe lately underwent a series of tests before the mayor and corporation of Bolton, which, as far as they were carried, were pronounced perfectly satisfactory, and so certified accordingly. The application of the wedge was omitted, as it was, at the time, considered useless. This omission was noticed in an article in the *Mechanic's Magazine*, with the remark that such a test must be a very expensive one; in fact, it involves nothing less than the destruction of the door of the safe. To this Mr. Chatwood replied, in a letter to the same journal, dated April 5, stating that the question was not one of expense, as each purchaser is allowed "to submit his safe to thirty-six hours' test before delivery, and we pay £100 if he succeeds in opening it." Being six months in arrears with orders, Mr. Chatwood is not able to give up a safe to the wedge and sledge-hammer, but promises one on the first opportunity, regardless of any expense whatever. The Chatwood safe has from 2½ in. to 3 in. of solid steel, made in a peculiar way; and he hurls unqualified defiance at blow-pipe, drill, chemicals, wedge, and gunpowder. We have already heard that more than one "destructive" mechanical artist is making arrangements to get at the £100. However that may be, there can be no question of the Chatwood safe strongly competing for a front rank place in the modern "safe" brigade.

Powder-proof locks form an important element of safe security. Mr. Chatwood says that they should not contain space for more than 1 dwt. of gunpowder. We suppose he means in a vertical position as the safe stands on the floor. Taking this position, there are several locks that will not hold half that quantity. Mr. Hart, of Hobbs, Hart, and Co., has contrived a lock that will only take 16 gr. of gunpowder under any amount of charging; but the horizontal powder-plugging will vary, in the various powder-proof locks, from 60 gr. to 16 gr., the larger spaces having outlets for the explosive force in the lock-chamber.

Let us turn for one moment to the fire-proof arrangements, the great desideratum in which is the preservation of parchment deeds. It is well known that the writing on parchment can all be steamed off "as clean as a new whistle;" therefore, what will preserve the scribble on the sheepskin will preserve anything else. As to the best mode of doing this, there seems to be some difference of opinion among safe-makers themselves, though all are agreed with respect to its great importance. Some years ago, Mr. George Price, of Wolverhampton, submitted this part of the question to experiment by the able hands of Mr. Herapath, of Bristol. Mr. Price, in addition to being a patentee and manufacturer of locks and safes, has cultivated the trade in all its aspects with such a devotion that he has absolutely created a literature for it. Let us hope that he has met with a commensurate reward. There is a kind of freemasonry among true brethren of the pen that always begets a kindly feeling, and an earnest wish for success, whether amateur or professional. Well, the result of Mr. Herapath's labours were, that parchment bore a *dry* heat effectively up to 300°, when kept from contact with metal, but that it would not stand anything like that test if the heat was in a moist condition. Some of the modern safes have special arrangements to counteract the effects of steam heat, and thereby preserve parchment. It is somewhat singular that, until very recently indeed, the scientific engineer has never been invited to the workshop of the safe-maker. Had he been, the specifications of bygone years, the crumbled tiles, slate, and broken crockery, would never have been put forward as some of the primary elements in safe construction. But the public is greatly to blame in this matter. "Cheapness! cheapness! cheapness!" is the universal cry, forgetting that quality is a most essential ingredient in the comparison of price. We are often amused, when taking our strolls, to notice, when passing among the second-hand office-furniture dealers, the *things* in iron that they call "safes." Such articles might answer very well to keep the tea and sugar from Betty, if that obliging young person was in the

* Concluded from page 396.

habit of giving cup-and-saucer parties on her monthly holiday afternoons, but—and here we repeat it—*but*, as far as any other kind of security is concerned, the deluded purchaser will discover on the very first actual trial how truly a fool and his money were soon parted.

Again. The concoctors of our jumble of Patent Laws have a great deal to answer for. The word "patent" is the greatest *ignis-fatuus* of manufacturing industry that could possibly be devised; it covers a multitude of "horrid" sins, and is used on every occasion where sharp practice is the order of the day. We hold that selling any article to the public with the word "patent" upon it, unless such patent really exists, should be treated as a misdemeanour and punished accordingly. Furthermore, that all patentees should be compelled to show to the public what it is to which the patent applies; by which means the said public would be in a position to know what they were buying, and the honest inventor would not be shamelessly victimised by what are neither more nor less than barefaced trade forgeries. Take one of these very articles—locks. In nothing is the word "patent" more grossly perverted. Without descending too much into particulars that might look like, in earnest, calling a spade a spade in these days of lingual refinement and expressional delicacy, we will ask, How many lock-makers and lock-dealers are able to justify the use of the word "patent" on many of the locks they sell to their customers with this decoy stamp upon them? When a patent has expired, the word should be erased from that peculiar construction of the article, and its continuance declared a trade forgery or fraud upon the public.

It may be said that in the discussion of the weakness of our lock and safe securities, we are instructing the thief. In answer to that we cannot do better than conclude this paper in the words of the celebrated French savan, Réaumur, on this very subject:—

"But is there not this danger, that at the same time we shall be giving lessons to thieves? It is not very probable that they will seek instruction of us, or that they have any need of it; they are greater masters in the art of opening doors than we can pretend to be. Let us, then, learn the art of opening locked doors, in order that we may acquire that of securing them in such a way as to leave little or nothing to be feared on account of their security."

In a forthcoming number we shall say something on the universal question of locks, both general and special, and relate a few singular instances of the penny wise and pound foolish economy that generally reigns amongst us, and of the up-hill and heart-sickening work of trying to prevail upon people to lock the stable door BEFORE the steed is stolen, instead of *afterwards*.

USEFUL HINTS.

THE best alloy for making taps for beer-barrels is—for the body of the tap: tin, 785 parts; antimony, 195; nickel, 20. For the key the best proportions: tin, 807; antimony, 175; nickel, 20; or, tin, 715; antimony, 215; and nickel, 70. These alloys are quite inoxidable under ordinary circumstances, and are the result of careful study.

DEODORISERS.—The following articles are easily available for the suppression of noxious gases, so fatal to health and life:—Two pounds of sulphate of iron (copperas) dissolved in a pailful of water, and poured into a vault, will prevent the formation of sulphuretted hydrogen gas for some time, and will generally be sufficient to remove all nuisance. A layer of charcoal dust will prevent the escape of all offensive odour from any decomposing substance. One pound of nitrate of lead dissolved in a pailful of water, is excellent for sinks, sink drains, and vaults. If other things fail, chloride of lime is always effectual, and may be freely used in vaults, and upon other collections of filth. These substances are not expensive, and will effectually destroy all the offensive smells. The quantity to be used will depend on the quantity of filth to be deodorised, and their permanency of effect upon local conditions in each case.

THE INTRODUCTION OF STEAM FIRE ENGINES.

IN 1856 Messrs. G. Rennie and Son constructed a portable disc engine and disc pump for the Woolwich Dockyard. This engine was mounted on wheels, and could be used either as a steam fire engine or as a pump for emptying the caissons. It had a cylinder 13 in. in diameter, and a 9-in. pump, and weighed about 2 tons, being 6 ft. long, and the same in height. At its official trial a height of discharge of 120 ft. to 130 ft. was obtained, the discharge being at the rate of 30 tons per hour, and the pumps making from 300 to 400 revolutions per minute. Messrs. Shand and Mason produced their first land steam fire engine in 1858, and two years later Mr. James Shekeltou, engineer, of Dundalk, constructed the first steam fire engine ever made in Ireland, and which works well, being still in use for fire duty. The London Fire Engine Establishment used a land steamer for the first time at a fire in Doctor's Commons. This engine appears to have been in some respects inferior to Mr. Braithwaite's first engine, and worked so indifferently that after a ten months' trial it was withdrawn. It was, however, soon replaced by one on a different construction, which closely resembled that of Mr. Braithwaite. In 1860 Mr. William Roberts—with whose labours in the cause of steam fire engines and volunteer fire brigades our readers are, doubtless, familiar—fitted a steam tug with a pair of his double-action twin-pumps. Each pump had two 11½-in. cylinders, with 12-in. stroke, the discharge being 30 gallons from the two at each stroke. They worked most satisfactorily, having paid for themselves at a single fire. During the same year Messrs. Merryweather appeared for the first time in connection with steam fire engines. They constructed, from the designs of Mr. E. Field, C.E., a steam floating fire engine for the Tyne Docks. This engine had two inclined steam cylinders, 16-in. diameter and 12-in. stroke, and two pumps each of 9-in. diameter and 10-in. stroke. Messrs. Merryweather's first land steamer was constructed in the following year, Mr. Field again furnishing the design; this was the well-known *Deluge*, which proved a perfect success. The *Deluge* was of 30-horse power, with a single horizontal 9-in. cylinder and 15-in. stroke, and a double-acting horizontal pump 6½-in. diameter and 15-in. stroke, worked direct off the piston-rod of the steam-cylinder, doing away with crank-shaft, crank, fly-wheel, connecting-rod, &c., which had previously been used in this class of engine. The reign of steam fire engines appears now to have commenced, for their manufacture proceeded briskly, Merryweather and Shand alternately coming before the public with a new production. Shand manufactured three engines for the London and North-Western Railway Company to run on rails, and an engine for the town of Gothenburg, besides some engines for the London Fire Establishment. Merryweather, although not so widely patronised as Shand, brought out the well-known *Torrent*, which has done such good service in many a London fire. This was in 1862, in which year Messrs. Lee and Larned, of New York, sent one of their small-sized rotary pump engines of 5-horse power, which won good opinions for its workmanship and finish, as well as for its satisfactory working.

PUTTING THE PENS IN BOXES. (*See page* 402.)

Railway Accommodation for the Working Classes.

THE improved means of transit afforded by the railway system, which has for more than thirty years exercised so marked an influence throughout the British Isles, has affected no class of society more powerfully than that large section of the community whose lives are devoted to labour. In the old coaching times, the luxury of travelling, on account of its unavoidable expenses, could only be enjoyed by the wealthy. Railway travelling, now so general, has so far changed this state of things, that the working classes participate to a considerable extent in the advantages it affords to the entire community. The first public benefit caused by the introduction of railways was the system, enforced by Act of Parliament, of running once a day, in each direction, a train at 1d. per mile. At first such trains started at unreasonable hours, and their rate of progress was attended with so much loss of time that a long journey almost consumed the limited period at the disposal of the working man. It is about twenty years since some of the time-tables announced that "third-class passengers were conveyed by the *slow train* at 1d. per mile." At present, so completely is the rate of travelling accelerated, that third-class passengers travel as rapidly, and in some few instances more expeditiously, than those who are conveyed in first or second class carriages.

Certain portions of the manufacturing districts may be reached by the Great Western Railway, and to promote through communication over other lines without change of carriage, the narrow gauge has for several years been laid down within the regular broad gauge rails. By the facilities thus afforded, third-class passengers may book from Paddington by the 8.0 a.m. train for Birmingham, Wolverhampton, Chester, and Holyhead, changing at Oxford into the 10.0 a.m. express from London. There are many other large towns embraced by the Great Western system to which the same facilities are offered by this line of railway to third-class passengers. The London and North-Western line runs to many towns in common with the Great Western, and affords even larger opportunities of travelling at third-class fare by certain trains. Many of these places are not given in the large official bills of the company, but are detailed at length in the smaller books, where much space is occupied with the enumeration of towns in the manufacturing districts where communication is afforded to the third-class traveller between one town and another, in addition to the cheap fares from London.

In the more immediate neighbourhood of the metropolis the advantages of reduced fares are clearly exhibited. The London and Brighton line has enjoyed the honour of inaugurating the cheap excursion system to Brighton, and other watering-places on the south coast of England. One great boon to the poorer classes not generally known ought to be here stated. This company issue third-class return tickets to every station on their line, excepting express trains. There are several third-class trains daily between London and Brighton, not including the Sunday and Monday excursions, which latter run at less than the ordinary single fares. On the suburban branches of this railway the fares are remarkably low, and every train has first, second, and third class

carriages attached. As an illustration, the cheap ride of 36 miles for 9d. between Victoria and London Bridge, and *vice versa*, by any train, may here be noticed. A more agreeable ride for a working man at a low charge cannot be met with elsewhere, the passenger travelling through the Crystal Palace grounds and the pleasant suburbs of the south of London.—The London, Chatham, and Dover Railway—a line only constructed within the last five years—possess an enormous traffic on their Metropolitan extension line, but the suburban range embraced is not quite so extensive as that of the Brighton Company. The third-class trains on the Chatham and Dover main line are very numerous, and return tickets are issued to all stations by ordinary trains. This company have recently increased their workmen's trains to three in each direction, at 1s. weekly fares, with the option of returning by any train after 5.30 p.m.—A large number of trains, many of them having third-class carriages attached, pass over the suburban branches of the South-Western Railway during the day.—The Mid-Kent line from Charing Cross and London Bridge, and likewise the Greenwich, sustains an equally large amount of traffic, at very low fares, both on week-days and Sundays.—The North London and Blackwall Companies run trains every quarter of an hour in either direction for fifteen hours daily, but there is no third-class. Reform has long been wanting in this matter, and the second-class fares might either be slightly lowered between the shorter distances on these two lines, or cheaper third-class fares introduced.—This leads us to notice the Metropolitan Railway, which, though only open three years and a half, has met with the most extraordinary success, and yet without in any way reducing the ordinary omnibus traffic near which it passes. At the present time about 180 trains in each direction travel daily from Moorgate Street, Aldersgate Street, and Bishop's Road, Paddington, from 6.5 a.m. till 12.15 midnight. These trains are all first, second, and third class, and the benefit to the public afforded by this line must be evident from the fact that a passenger will always be in time for a train, and never has to wait more than five minutes at the utmost. Two trains in every hour run on to Kensington, and three to Hammersmith; to both these places the third-class single fare is 4d.; and the return is 6d. from Farringdon Street, or 1d. and 2d. additional from Moorgate Street. The fare to Bishop's Road is 4d., return 6d. The fare from one station to the next, in any direction (except between Farringdon Street and King's Cross), is 1d. We need not be surprised after this to find that in the year 1863 as many as 8,455,175 passengers travelled over that portion of the line then open; the following year, 11,721,889; and in the first half-year of 1865, when a further reduction was made in the third-class fares, 7,462,823. In one single week 370,843 passengers were conveyed, and in one day 83,440. There is every reason to believe these numbers are at the present time considerably increased; for, twelve months since, as many as 1,200 workmen travelled by the cheap trains for their use, at 1s. per week. Three of these workmen's trains run daily in each direction, giving the holder of the ticket the option of returning by any train.

From the above enumeration it is evident that the working classes are the principal supporters of a railway company, when the fares are sufficiently moderate to admit of their travelling to reasonable distances. The Board of Trade returns reveal the astonishing fact that as many as 200,000,000 persons of all classes annually travel over the 12,000 miles of railway now open throughout the kingdom. This computation does not include the holders of season tickets. In every train there is a larger proportion of third-class carriages than first and second, and there can be no doubt that the great bulk of railway travellers is composed of those who pay third-class fare. When the various lines now in course of construction are completed, the means of rapid transit in the neighbourhood of London will be largely increased, with a corresponding benefit to those to whom railway travelling is most beneficial—the working classes.

The Metropolitan Railway is 4¾ miles long, and its traffic during the Whitsun week amounted to £4,856, which is above £1,000 for each mile in the week. The number of passengers conveyed over the line was 484,900.

A YEAR OF THE RINDERPEST.

It is a melancholy fact that the rinderpest, although happily greatly abated, has now existed in the United Kingdom for an entire year, the first cases having been officially noted in Great Britain in the week ending June 24, 1865. We have not yet a complete year's figures as to the progress of the malady; but the weekly attacks are annexed for fifty weeks, back cases being included:—

Week ending	Cases.	Week ending	Cases.
June 24, 1865	30	Dec. 23, 1865	8,351
July 1	147	„ 30	9,506
„ 8	575	Jan. 6, 1866	8,508
„ 15	321	„ 13	12,299
„ 22	490	„ 20	12,842
„ 29	757	„ 27	15,638
Aug. 5	1,145	Feb. 3	11,443
„ 12	1,231	„ 10	15,895
„ 19	1,175	„ 17	18,356
„ 26	1,270	„ 24	11,310
Sept. 2	922	March 3	9,370
„ 9	847	„ 10	8,263
„ 16	1,354	„ 17	8,028
„ 23	1,333	„ 24	5,672
„ 30	1,666	„ 31	4,653
Oct. 7	1,436	April 7	4,008
„ 14	2,364	„ 14	4,320
„ 21	1,955	„ 21	3,805
„ 28	2,210	„ 28	3,753
Nov. 4	3,158	May 5	3,067
„ 11	3,761	„ 12	3,660
„ 18	4,310	„ 19	4,921
„ 25	5,011	„ 26	3,086
Dec. 2	5,679	June 2	2,187
„ 9	6,988	„ 9	1,383
„ 16	8,008		

Although the ravages of the disease have been greatly mitigated, it will be observed that even now the number of attacks is as large as it was in September, when the subject excited a far larger increase of public attention than it does at present. The Contagious Diseases Prevention Act, 1866, which came into operation towards the close of February, will be seen to have been attended with the happiest results. Up to the enforcement of a policy of slaughter and isolation the disease continually extended its ravages, the attacks noted in July, 1865, having been 2,290; in August, 4,821; in September, 6,122; in October, 7,955; in November, 16,240; in December, 38,532; in January, 1866, 49,287; and in February, 57,004. In March, when the new Act had got into working, the attacks sunk to 35,986; in April they further declined to 15,836; and in May to 14,734. In the current month they promise to exhibit a still further decrease.

HOW TO MAKE MAGIC PHOTOGRAPHS.

Take, in the first place, an ordinary print—a card-picture, for instance—on albumen paper, beneath the negative in the usual way, and, when sufficiently printed, let it be carefully washed in the dark room, so as to remove all the free nitrate of silver, &c. Now immerse it in the following solution, also in the dark room:—Saturated solution bichloride of mercury (corrosive sublimate), 1 ounce; hydrochloric acid, 1 drachm. The saturated solution is previously prepared by putting into water more bichloride of mercury than it will dissolve by shaking in about twelve hours.

The print will gradually be bleached in this liquid, in the ordinary meaning of the word—that is, it will disappear; but the fact is, the print is still there—its colour alone is changed, a double salt having been formed of mercury and silver, which is white, as many of our readers, who have been in the habit of intensifying with a mercurial salt, are aware of. As soon as the print has quite disappeared, the paper is thoroughly washed and dried in the dark room; it is also preserved between folds of orange-coloured paper, in order to keep it from the action of light, for the surface is still in some measure sensitive to light.

The bleaching of the print—that is, its conversion into a white salt—is effected more quickly by keeping it in motion in the mercurial solution.

As we said before, the print has not been bleached in reality—the substance which originally formed it is still there, together with a new substance, a salt of mercury. But the two salts of silver and mercury may be easily brought out and made visible by several solutions, such as sulphide of ammonium, solution of hydrosulphuric acid; in fact, any of the soluble sulphides, ammonia and hyposulphite of soda. The latter salt is used in preference to the others. Small pieces of blotting-paper, therefore, of the same size as the prints, are cut out, and steeped in a saturated solution of hyposulphite of soda, and then dried.

The magic photographs are packed, as before stated, between folds of orange-coloured paper; the papers dipped in hyposulphite of soda are the developers, and may be packed between two sheets of common writing-paper. The development of the image is effected in the following manner:—Place the albumen paper which contains the whitened print on a pane of glass, print side upwards; on this lay the dry piece of blotting-paper that has been previously dipped in hyposulphite of soda. Moisten the latter thoroughly, then place over it a pane of glass, and upon this a weight, to bring the two pieces of paper into intimate contact. In a very short time the picture will appear in all its original detail, and of a sepia tone.

Mercury-Gilding.

Although mercury-gilding is not much practised now-a-days, yet as a great portion of its processes were starting-points in electro-chemical manufacture, some details of the method may prove useful.

The nature of the copper alloy operated upon has a great influence upon the success of the gilding. The alloy recognised as the best by M. Darcet, who so greatly ameliorated this murderous art, is composed of copper 82 parts, zinc 18, tin 1, and lead 8 parts; a smaller proportion of copper leads to accidents in the success of the gilding. The mercury serves as a medium in the gilding by forming a double amalgam of copper and gold; it is, therefore, important to take the alloy richest in copper, for the heatings employed to prepare the metals for being cleaned are for the special object of bringing the external surfaces to the state of pure copper by the volatilisation of the zinc, and consequently facilitate the combination of the amalgam with the copper surfaces. The operations in mercury-gilding are "scraping and cleaning;" "gilding" including the preparation of the amalgam, its application to the pieces to be gilt, and the volatilisation of the mercury; and the "colouring," including "matting," the putting on "red gold," or *ormolu*, and burnishing. The cleaning processes have been described in our articles on "Electrotyping."

Gilding.—For mercury-gilding, fine gold—that is, gold at 1000—is useless, it dissolves so badly; an alloy of gold and copper, of $\frac{960}{1000}$ths at least, must be employed. To prepare the amalgam, put into a crucible, heated upon a well-ventilated gilder's forge, 1 oz. of gold and 7½ oz. of mercury; then, with a hook of coarse iron wire, stir up the gold and mercury from the bottom of the crucible in order to facilitate the solution. The amalgam formed is poured out into an earthen basin, and kneaded with the hand so as to squeeze out the excess of mercury; it must be pasty, like modelling wax, and retain the imprint of the fingers; it contains 9 to 11 parts gold to 91 to 89 mercury; it is then divided by the hand into four, five, or six pieces or more, according to the size of the articles to which it is to be applied. The quantity of gold in each piece may be easily estimated.

The gold thus amalgamated is now placed upon an unglazed earthen plate; then, with a scratch brush, made in the shape of a very fine pencil, and dipped into a solution of nitrate of mercury diluted to $\frac{1}{10}$th or $\frac{1}{50}$th, according to the richness of the copper, the article is rubbed, with as little amalgam as possible also, until it becomes whitened. This done, the amalgam is laid on according to the thickness of the coating it is wished to be deposited, by brushing with a gentle stippling action, with the point of the scratch-brush, until the coating is uniform throughout.

Firing.—The articles are next heated over a brisk fire. From time to time a drop of water is thrown upon the gilded article; when it frizzles, it is withdrawn from the fire with a pair of tongs, held in the left hand, protected by a stout leather glove against burns and contact of mercurial fumes, then, with a long-handled brush, held in the right hand, we tap the surface, in order to extend and equalise the gold. This operation being repeated upon the article five or six times, we perceive that the mercury has evaporated, and the article has become of a straw-yellow colour.

It almost always happens that the gold has not taken sufficiently everywhere; then the operation has to be partially gone over again—not with the nitrate of mercury, but with water acidulated with nitric acid. The gold amalgam is then placed upon the weak parts, but with a smaller scratch-brush; the article is next fired, to volatilise the mercury, and afterwards "scratched" under water slightly acidulated with vinegar, or with liquorice-water, then passed through warm water, and dried in sawdust. The scratch-brush gives the gold a greenish tinge, and a very uniform brilliancy in all those parts over which the scratch-brush has passed—a sure sign that the work is finished.

Colouring.—To give the commercial aspect to the gilding, after the scratch-brush recourse is had to colouring. That most employed is *ormolu*.

First, the article is heated, when it takes a stronger straw-colour; it is then allowed to cool, and *ormolu* colour is applied with the pencil. Heated to a brown fusion point, the article is immersed in water containing five per cent. of hydrochloric acid. It is then washed with a pencil, and dried. The desired colour being obtained, the smooth parts are burnished with stone or steel tools, then slightly warmed and dried, and the article is finished.

Matting.—This process demands much skill and experience. After the scratch-brushing, the parts not gilt, or which are to be burnished, are covered by means of a soft pencil with a mixture of Spanish white, well ground up with weak gum and sugar water. The article is left to dry before the fire, and then attached by an iron wire to a piece of flat iron called a *mandrin*, taking care not to put the attachments on the parts which are to become *mat*. The article is then heated over a charcoal fire until the gilt parts become blue; then, by means of a pencil, it is covered with a composition called *mat*, which is melted in an enamelled iron saucepan. This composition consists of—water, 5 parts; nitrate of potassa, 46 parts; potash alum, 46 parts; and sea salt, 3 parts.

The article, covered two or three times with this mixture, is heated until the salts melt, and become golden-yellow while becoming detached from the surface; it is then quickly immersed in a large cistern of water. The detached salts fall to the bottom of the cistern, and the article appears of a beautiful gold *mat* colour. In this operation, the *mat* is due to the surface being attacked by the disengagement of chloride, which, dissolving the copper of the alloy, forms a fine network, and, by not reflecting the light, produces the *mat* effect.

The portion of the article opposite to that first immersed almost always shows green spots. The article is returned to the fire; then, with a pencil and the *mat* mixture, diluted with a little water, the spots are carefully gone over. After heating a few minutes, it is re-dipped in the cistern, then washed in water very slightly acidulated with nitric acid, rinsed in warm water, and dried in an oven.

The portions covered with Spanish white are burnished in the usual manner; the article is then washed, dried, and carried to the *mat* furnace, and finally dried, to avoid the appearance of spots of mercury.

The process for obtaining red gold has been described in the articles on "Electrotyping." To be applied successfully, these processes imperatively demand a determined quantity of gold, without which success is impossible. Thus an article which may be gilt by the battery with 25 gr. of gold requires 50 gr. when gilt with mercury and *ormolu*, and 1 gr. for the *mat* gilding.

Strength of Glass.—The tensile breaking strength of annealed flint glass is about 2,286 lb. per square inch, or 1·02 tons; of green glass, 1·29 tons; and of crown glass, 1·14 tons.

A Sure Test for Kerosene Oil.—*Good* kerosene is not explosive to any dangerous degree whatever; it is only when it has an excess of benzine or some other explosive substance that it becomes dangerous. The following test is given, as showing the difference between oil sufficiently pure to be safe, and that which is otherwise:—Fill a tumbler three-fourths full of moderately cool water, and pour one-half of a tablespoonful of oil on to it; stir it together, then hold a lighted match over it, and if it takes fire from the vapour before the flame comes in contact with the oil, it is dangerous and ought not to be used, as good oil will not thus ignite, and will not burn readily even when a lighted match is thrown into it, but most of the adulterated oil will burn freely.

Some exceptional instances of retention of mental vigour in old age have been recently occupying a share of public attention; and *apropos* of a letter of Dr. Forbes Winslow's on the subject, it has been remarked as an undeniable fact that a large number of the noblest works of the imagination have been produced when their authors had reached the period when it is generally supposed that the faculties begin to decay. Michael Angelo began his great picture of the "Last Judgment" when he was fifty-nine. Milton finished "Paradise Lost" when he was fifty-seven. Among musicians the facts are fully as remarkable. Gluck revolutionised the operatic art by bringing out "Orfeo" when he was fifty. Handel was fifty-eight when he wrote his "Esther; when he wrote "Israel in Egypt" he was sixty-five; and when he wrote the "Messiah" he was sixty-seven. Haydn wrote the "Creation" when he was sixty-four, and Beethoven was fifty-three when he wrote the "Choral Symphony."

AN INTELLECTUAL PUBLIC-HOUSE.

The new building recently erected for the Hulme (Manchester) Free Library has just been opened with some *éclat*. It is a handsome structure, in the Italian style of architecture, and contains, on the ground floor, a vestibule, library, and news-room, the library being 48 ft. 9 in. by 29 ft. 6 in., and the reading or news-room 47 ft. 6 in. by 42 ft. 9 in. The latter is most admirably adapted to the purpose, being very light, and well ventilated. It is fitted up with the usual stands, tables, &c., and well supplied with the leading papers of the day. There are from 10,000 to 11,000 volumes in the library, about 1,000 having been very recently added, chiefly books of reference, it being intended to accommodate visitors with such books for reading in the news-room, in addition to those in the lending department. The front part of the building is three storeys high, the second consisting of a committee-room and lavatories, over which is a store-room. The cost of the building was a little over £3,000.

The first branch library in Manchester was established in Hulme. In the first year of its being opened, when the books were located in a comparatively small house on this side of the road, and not very far from the room in which they were assembled, 215 volumes per day were issued, making, during the year, an aggregate of 50,000 volumes. 50,000 volumes were read during the first year of the library being established, though that year had comprised only 233 days, for the report of the free libraries has always been made up to the end of September, and that report was made up to the month of September in that year. In the second year of its establishment 226 volumes per day were issued, or an aggregate of 67,000 per year. In the third year of its establishment the daily issue was 231, the aggregate issue for the year upwards of 69,000. In the fourth year the daily issue was 259, the aggregate for the year being 77,000 and upwards. In the fifth year the daily issue was 305 volumes, and the yearly aggregate upwards of 91,000. In the sixth year the daily issue was 319, and the aggregate issue close upon 96,000. In the seventh year the daily issue was 296, and the aggregate during the year 89,000. During the last year, ending September, 1865, the daily issue was 318, and the aggregate for the year nearly 96,000 volumes.

Some time ago it was suggested that a complete set of the Holy Scriptures, printed in embossed characters, should be provided in the Manchester Free Libraries for the use of the blind. The cost was considerable, but the committee incurred the cost, and divided the books amongst the branch libraries, so that in every branch may now be found some portion of the Holy Scriptures, which the blind can have by applying for. The result has been in every way satisfactory, and the books have proved a source of comfort to those who were comparatively shut out from society by the loss of sight. The general character of the society may be gleaned by a few statistics of the classification. On theology and philosophy there are 187 volumes; history, biography, voyages, and travels, 1,900; politics, commerce, &c., 87; science and arts, 510; general literature, 3,730; and books for the blind, 20. Well may the working men of Hulme feel proud of their new institution. We wish there were more such "public"-houses.

FLOWERS FOR PERFUMERY.

The number of flowers used for perfumery purposes has hitherto been limited to seven, viz., rose, jasmine, orange, violet, jonquil, tuberose, and cassie. The rose used is the hundred-leaved rose (*Rosa centifolia*), the jasmine is the *Jasminum grandiflorum*, the orange is the bitter orange (*Citrus bigaradia*), and the violet the *Viola odorata*, or double Parma violet.

The tuberose (*Polyanthes tuberosa*) and the jonquil (*Narcissus jonquila*) are two bulbous plants, and the cassie (*Acacia farnesiana*) a pretty shrub with globular golden flowers, which thrives admirably in the south of France.

Out of those flowers four only are distilled and yield essential oils, viz., rose, orange, jasmine, and cassie. Rose gives the far-famed otto, which is principally made in Turkey, near Adrianople. Orange flowers produce what is called neroly, a name derived from *nero olio*, dark oil, on account of its becoming dark by exposure to light, and not, as some people have imagined, from its having been discovered in the time of Nero, for the Romans were totally ignorant of the art of distillation. Jasmine and cassie are only distilled, to my knowledge, in Northern Africa (Algeria and Tunis) and in India, European flowers not possessing a sufficiently intense fragrance.

The aroma of the other flowers is extracted by means of absorption or maceration. Besides the flowers named, others are sometimes submitted to these processes, such as mignonette, lilac, hawthorn, wallflower, lily, heliotrope, sweet-pea, &c.; but the quantities obtained are so small, that they have hitherto been mere experiments, and we are still obliged to compound all these perfumes artificially by studying resemblances and affinities, and blending the shades of scent as a painter does the colours on his palette. Thus, for instance, we imitate heliotrope with the aid of vanilla, sweet-pea by a mixture of rose and orange flowers, magnolia with tuberose, orange flower, and a dash of lemon, &c.—*Eugene Rimmel.*

Facts and Memoranda.

The cultivation of tea in India is a great success. The Government factory turned out 16,125 lb. last season.

The flexibility of "spun" glass is so great that it has been proposed to use glass fibres as a textile material for articles of clothing.

It is proposed in California to supply San Francisco and a dozen interior towns with water from Lake Tahoe. The length of the aqueduct, if it is extended to San Francisco, will be 200 miles.

The Cobden railway station, on the Illinois Central Railroad, about twenty miles from Chicago, is the chief depôt for the produce of numerous fruit farms in the surrounding country. From seven to twenty tons of strawberries are sent daily from these farms to supply the markets of the north. Eight years ago these farms were portions of the primitive forest.

Society of Arts' Examinations.—The Prince Consort's Prize of twenty-five guineas has been awarded to Mr. James Rigby Smith, aged twenty-five, of the City of London College, clerk, who has obtained the following first-class certificates:—Political economy, first-class certificate; arithmetic, ditto; geometry, ditto; book-keeping, ditto; algebra, ditto, with second prize; logic and mental science, ditto; domestic economy, ditto.

Coal in Germany.—The total amount of coal produced in the States of the German Zollverein in 1864 was 388,179,637 cwt. Of this Prussia produced 330,954,892 cwt.; Bavaria, 4,888,817; Saxony, 42,182,202; Hanover, 6,890,671; Baden, 246,772; Electoral Hesse, 2,926,638; Thuringia, 89,595; and Oldenburg, 50. The total amount produced in 1864 was 50,045,485 cwt. more than in 1863.

Cotton Manufactures in Mexico.—In Mexico there is a large cotton manufactory, conducted by Senor Don Grandison, an American. It is situated at Cocolapam, and employs from 300 to 400 hands. Senor Grandison manufactures all kinds of cotton and some woollen goods, and the articles he produces are much appreciated and sought after by the natives, both Indian and Mexican. The machinery of the mill is worked by water-power derived from a river that passes through the town.

Oiling Leather.—The *Scientific American* says that oils should not be applied to dry leather, as they would invariably injure it. If you wish to oil a harness, wet it over night, cover it with a blanket, and in the morning it will be dry and supple; then apply neat's-foot oil in small quantities, and with so much elbow grease as will ensure its disseminating itself throughout the leather. A soft, pliant harness is easy to handle, and lasts longer than a neglected one. Never use vegetable oils on leather; and among animal oils, neat's-foot is the best.

Petroleum in Shropshire.—An American gentleman, Mr. Holmes, who has had considerable experience of the oil fields of Pennsylvania, and is now superintending some very large coal-distilling works recently established at Ruabon, is so convinced that large stores of natural petroleum exist in Shropshire that he is making arrangements for the erection, on the estate of Lord Forester, of proper machinery for putting the matter to a decisive test. All, indeed, that remains to be tested is as to the quantity in which oily and pitchy bodies occur in the district in question, for that they do occur there is matter of experience. An oily liquid is frequently found oozing through the rock through which the shafts of the mines in the Coalbrookdale coal field are carried, and often occasions considerable annoyance to the miners. "Tar Tunnel," Benthall, and "Pitch Yard," Coalport, received their names from the occurrence in them of a substance which was at one time collected in considerable quantity, and sold as "Betton's British Oil." These are but a few out of many similar facts, all suggesting the probability—the almost certainty, Mr. Holmes thinks—of the existence of a considerable oil field in Shropshire.

New Iron-Preserving Agent.—Dr. Henry Edward Francis De Brion, a Parisian physician, who for many years has resided in England, has discovered and patented a process for preparing from india-rubber what we may designate an *enamel paint*, which is absolutely proof against the action of the atmosphere, as well as against the power of all liquids (including the most potent acids) to affect iron. This enamel paint possesses all the remarkable qualities of india-rubber, without combining with them any other substance or element that is calculated in the slightest degree to counteract their thoroughly efficient operation. The preparation is applied cold and in a liquid state, and in consistency and general appearance it resembles such common oil-paint as is ordinarily used for ironwork. It may be applied with ease; but of course it is necessary that the process of application should be conducted with such care as will ensure a complete covering of the surfaces to be protected. This covering may be so thin that its presence cannot be detected; while it leaves the protected surfaces in all their original sharply-defined freshness. It hardens also at once, and immediately forms a smooth and lustrous enamel-like covering, air-proof, damp-proof, water-proof, and acid-proof. Thus protected, the iron is safe. Rust cannot accumulate upon the surface of this enamel paint, nor corrode beneath it. —*Art Journal.*

"ALL LABOUR IS SACRED."—*Carlyle.*

THE WORKING MAN.

JUNE 30, 1866.

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Our Next Number.

WITH our next number will commence the new Penny Series, of which we have apprised our readers. Former periodicals addressed to the working classes have been entirely literary, and not very relevant in their information; or purely scientific, and lacking general interest; or mechanical, to the exclusion of social topics. We intend to supply literary information that shall be relevant to the wants and curiosity of the day; to report facts of scientific progress which have interest to all; to add to mechanical and industrial knowledge accounts of the chief social topics which now constitute the modern life of the people, and introduce a fresh feature, unattempted in the days when the Society for the Diffusion of Useful Knowledge reigned—namely, the discussion of public affairs and political questions affecting the working man as a citizen. The want of this living information, if we may so call it, has long been felt. The working class has not only increased in numbers and intelligence, but the range of questions in which they take interest has grown also. Now-a-days a man is not merely an artisan, he is a citizen—a trades unionist—a politician; he cares for personal improvement and for public affairs. Our aim is to supply information not elsewhere to be found, and a paper which, if not indispensable to working men, shall have features of wide interest to them, and of direct and daily utility.

With our next number will be given to each reader a large Map of Europe, to illustrate the seat of the new European war. Explanatory articles will also appear in these columns, furnishing full, clear, and reliable information on the origin, character, and tendencies of the war as respects the future of the working classes of the Continental nations.

The communications we have received assure us beyond a doubt of the active good wishes of our numerous subscribers.

In this number, therefore, we have ventured to enclose a sheet of small bills announcing the features of our New Series, and we believe that each reader will be glad to do us the service of cutting up the sheet, and distributing the parts among friends and acquaintances.

Public Topics.

AN eloquent preacher, who had had great experience of life, once said, "Error always dies game." It is ubiquitous. It is like Sir Boyle Roche's bird—it is in two places at once, and somewhere else also. A misrepresentation is always long-lived. It seems to have no mortal place. It is like a worm alive at both ends. If you cut it in two, each separate part wriggles on its own account, and all you can do is to chop at it. A distinguished French historian has found out the truth of this. M. Louis Blanc was the most brilliant of modern advocates of the organisation of labour, to which every day brings us nearer. During the French Revolution of 1848, he promoted plans of Industrial Associations, when some clever opponents set on foot a burlesque of his plans, called "National Workshops," on principles so wild and absurd that they must come to grief. These plans were imputed to M. Blanc, and no human ingenuity has ever been able to correct the skilful misrepresentation. Once or twice every year since, has this imposition been denied, refuted, contradicted, proved to be false. It has been done in public speeches, in books of history, in pamphlets, in reviews, in newspapers—all in vain. Nothing can touch the vitality of the imposition. The other day the *Standard* repeated it in its French correspondent's letter. Even in the very city where the falsity of the report is best known, it is repeated as vehemently as here, where there is excuse for ignorance of foreign affairs. This misrepresentation of the character of the proposals for the organisation of labour in Paris in 1848, is of very great importance to the working classes everywhere. It has arrested the progress of this great question, prejudiced people against it, turned friends aside from it; it is, therefore, of interest to hear what the author of the movement traduced really had to do in the matter. Louis Blanc was an eminent historian in his own country, before he became an exile in ours. He has since attained a high literary reputation in this country, as a most intelligent, impartial, and best-informed critic of English political institutions which the French nation has ever sent us. His own words, therefore, in vindication of himself, deserve quotation in these columns. They are:—

> I most emphatically deny having had anything whatever to do either with the establishment or the organisation of the national workshops in 1848, and it surprises me to the utmost that writers supposed to be well informed should still be found to fasten upon me a charge the falsity of which has been made patent by my writings, my speeches, and my acts; by a series of official documents inserted in the *Moniteur;* by the evidence adduced before the commission of inquiry which the National Assembly appointed in 1848; by the declarations of the members of the Provisional Government; by my public and repeated denials, never contradicted, of any connection whatever with those national workshops; by the confessions of their real contrivers, and of their very director, M. Emile Thomas. In 1848 the national workshops were *not* started by me. Nay, they were established in hostility to my principles, and for the express purpose of opposing my influence. Their object was, as formally stated by M. Emile Thomas, in his "Histoire des Ateliers Nationaux," "to set up an altar opposed to that of the Luxembourg." The following is the declaration of M. de Lamartine, in his "Histoire de la Révolution de Février"—"So far from being in the pay of Louis Blanc, as has been said, the national workshops were the device of his adversaries."

If there be any dash of mortality in this misrepresention, it will die of this exposure. It will be well if some moral rinderpest could break out among errors and carry them off, after the manner of the cattle plague. No bill will ever be proposed in Parliament to arrest so serviceable an epidemic.

EVEN the interest of the rising European war has been superseded by the sudden fall of the Government. We say sudden, because its end came in an incidental kind of way. We may have had an honest Government before in England, but this is the first Government which the nation knew to be honest. The usual end of a Government is a great party fight, in which hostile leaders, bearing openly public standards of battle, meet in deadly conflict, and defeat wears an air of Titanic strife and grandeur. But in this case a shabby, Janus-faced "amendment," looking two ways at once, but never in the face of the foe, borne by an Irish knight, issuing from the Cave of Adullam, took, by a cowardly stratagem, the destiny of the nation into its hands—into hands not able to hold them. The Government had proposed, as our readers are aware, a £7 franchise, which would admit some 240,000 new electors into the constituencies. Instead of a rental franchise, Lord Dunkellin proposed a rating franchise, the effect of which would be to convert the £7 into a £9 franchise, which would add to the constituencies scarcely 45,000 voters. The Government resisted this proposal, which was carried by a majority of eleven. Mr. Gladstone was not met by a direct proposal to reject a £7 franchise, but by an underhand motion to adopt a different plan of estimating the franchise, which would defeat it without assuming to defeat it; so that members may say to their constituents that they did not oppose Reform at the same time that they voted for a method of reform which would effectually defeat it.

No great party speeches preceded the division. The night might be characterised as one of wrangle and riot, interspersed by a very few explanatory speeches. The Opposition were more rude and turbulent than usual. On Tuesday night the House and lobbies were crowded. Mr. Gladstone, in a few sad and cold words, simply announced that, from the character of the division which had taken place early that morning, the Ministers of the Crown had thought it their duty to communicate with Her Majesty, and might, by the next Monday, be able to state the result to the House. The Queen being at Balmoral, Earl Russell would have to proceed to Scotland, to confer upon the course which the Crown should advise. Mr. Gladstone's announcement was received in silence. The responsibility which the Opposition had incurred in plunging the country into political uncertainty, in the face of a European war, was no matter for exultation.

THE question was lately discussed in our Legislature, whether intelligence carried with it any political guarantee? It has hardly been settled in this country whether ordinary education, of the mere intellectual kind, carries with it moralising influences. In America the question is considered pretty much as settled, and they accept as authority upon the subject the results arrived at in this country. In a State paper recently published by the United States Government on "Prisons and their Discipline," there is quoted with satisfaction

and approval the opinion of Mr. C. P. Measor, an officer at the Chatham prison, England, which might serve to set at rest the disputed question as to the actual influence of mere education for the repression of crime. His words, so precise and decisive, are entitled to special consideration :—

It would seem (says he) that the evidence furnished of education, among even the criminals themselves, tends to show that the small amount of instruction implied in the test here recognised—the simple distinction between the ability to read and write imperfectly, and inability either to read or write at all—has a most material influence in the development of crime; and, were the investigation carried no further, we should be forced to conclude that, since the most criminal districts show a higher ratio of uninstructed persons among the criminals, and the less criminal districts a less proportion who are wholly destitute of the rudest elements of education, the immediate inference is, that even this small degree of instruction tends to the repression of crime.

When Mr. Gladstone consented to hamper his Franchise Bill with one for the Redistribution of Seats, the fall of his Government was sealed. His conciliation has been futile. Nothing would conciliate the Opposition but withdrawing the Bill. To ask the House to reduce the figure of £7 to £5, and so restore the balance of the suffrage to the amount fixed by the Government, would be to ask the Opposition to kick them out, not having themselves the quickness of insight necessary to tell them when to go. While these pages are travelling to our readers, Her Majesty will have returned to Windsor, for the purpose of consulting with her ministers whether Earl Russell or Lord Derby shall hold the reins of power. In the meantime, all who care for Reform have due notice to bestir themselves. If they intend to have the question settled, and not shelved for years, meetings must be held in support of the Gladstone Government. The people never had a minister before who cared for *them* as Mr. Gladstone has done. The question is, Do they care for *him?*

The Artist Workman.

SHIELD OF THE SIXTEENTH CENTURY.

This shield is carved in wood, and is supposed to be the work of an Italian artist. According to all appearance, it has served to adorn one of the splendid festivals which the princes of the Italian cities lavished on the people in the course of the sixteenth century, and in which enormous triumphal cars promenaded the squares and principal streets, performing pompous scenes, the subjects of which were derived from the mythology or ancient history of Greece and Rome. Doubtless, the buckler, or shield, represented in our engraving was a portion of the arms of some young nobleman of Pisa or Florence, representing a Roman Emperor returning from his victories. The arabesques of the border are remarkable for their richness. This piece of carving may be considered as a valuable example of Italian taste at the best period of the renaissance.

SHIELD OF THE SIXTEENTH CENTURY.

Primrose Hill.

When I was a little boy, now "ever so long ago," Primrose Hill was in the country indeed. The Regent's Park was formed, but the trees were little saplings, and there were no flower-beds. The York and Albany and Park Street were the limits of the houses, and from Gloucester Gate to St. John's Wood there was nothing but open fields, thick patches of woodland, and hedgerows, with tall elms and decaying stumps of oaks I don't know how many hundreds of years old. The hill itself had no paths, no cricket-ground, no pavilion, and there was no gymnasium or Shakespeare's Oak in the fields at the foot. We used to run up and down the slopes, pick up buttercups and daisies, scramble through hedges, climb stiles (swing-gates we knew nothing about), jump ditches, and altogether enjoy ourselves, as much out of the sight of houses as if we were in the midst of Salisbury Plain. Old Chalk Farm, indeed, there was; but it was a small, irregularly-built white house, with what we called a "tea-garden," though tea was certainly not the most favoured beverage. The top of the hill was worn bare—as, indeed, it is now—by the tread of many feet; and I cannot say much for the decorum of the proceedings there on high-days and holidays; and perhaps it is quite as well that there are now park-keepers to preserve a little better order.

But what a view we had from the summit! and didn't we think we had achieved something little short of Alpine climbing when we got there. If we looked towards the Regent's Park, there it lay below us like a picture. The outer road, of horse-shoe shape, the inner circle, the lake, the broad paths so clean and new, like long pine-shavings stretched across the green sward, and dotted with the moving figures of men and women and children; the plantations and the mansions scattered about, and the animal-houses and rustic lodges of the Zoological Gardens—all were clear and distinct in the bright sunshine. Beyond rose the extinguisher-like spire of the Langham Place church, the dome of the London University, the dense mass of houses, distinct enough in the foreground, but blurred and misty with increasing distance, and the hundred steeples of great London, with the crowning dome and towers of St. Paul's standing out in massive strength and beauty against the sky.

When we turned round, there were Hampstead and Highgate, the small tower and weathercock of the church at the former place peeping above the thick foliage, and Highgate church, white and new, the most prominent feature in the landscape. The fields between us and the Hampstead hills were, I verily believed then, the pleasantest in existence; and, though I have seen a great deal of the beauty of English landscape since, I am almost disposed to think so now. The grounds of old Belsize House, regarding which I could relate some singular anecdotes, were enclosed in massive red brick walls, and there was a long narrow passage through the grounds, "a place for whispering lovers made." A friend of mine, who has read almost more books than I have ever seen, says that John Keats, Leigh Hunt, and other writers who seem quite familiar to him, though I hardly know their names, used to stroll about these Hampstead fields and write poetry about them, and that, in consequence, they were sneered at by other writers—who used to climb mountains, and row about on foreign lakes, and were familiar with all sorts of grand and beautiful sights—as the "Cockney poets." It would take a great deal to make me a poet (indeed, I don't even know many songs, which I suppose are poetry, though now and then I hum "Through the wood, laddie," just by way of a joke, when I am cutting up a plank of inch stuff); but, upon my word, sometimes when I have been lying on the long grass in those Hampstead fields, and felt the sweet wind come trembling, as it were, over my face, and heard the skylark singing ever so high up, I have had a sort of feeling that I can well understand a cleverer fellow than myself might turn into very good poetry.

But it's of no use talking about old times like that. I dare say, mother, that young Willie and Jenny there, who are cutting all sorts of capers on the grass, are quite as happy as we were when we used to race down hill for a cake; and it doesn't signify much to them that the hill is now railed in and called a park—that railway trains are puffing and blowing in a cutting just below us—that houses have crept up on every side—that, though we can see Hampstead and Highgate still, yet all between us are roofs and chimney-pots, terraces, Adelaide Roads, Belsize Park Estates, shops, and big taverns where Chalk Farm used to be, and railway stations and huge circular engine-shops and stables, where you and I used to run after the bright-coloured butterflies, and pick up daisies and all sorts of little wild flowers to put in bottles on the mantelpiece at home.

We used to play at leap-frog and fly-the-garter when I was a boy, and I could fly eight or nine

feet as well as the best of them; but we never could do such wonderful things as these young fellows are doing now in the gymnasium. Those parallel bars would beat me now altogether; so would the trapeze and vaulting on the wooden horse; and shouldn't I be giddy swinging round and round with those ropes! But the young fellows like it; and it's a good thing to bring out the muscles and open the chest, and prevent a fellow being round-shouldered and weak-legged and stunted.

Yes, if you like, mother, the children shall have a bun and a bottle of ginger-beer at Marioni's, in the Pavilion; and then we will look at the cricketing. It is a queer ground, all on a hill-side; but it will do for practice. There they are, big and little—school clubs with coloured caps, boys who belong to no club at all—small chaps in knickerbockers, big ones in flannel trousers—soldiers with their jackets off bowling and batting away like fun. That's a good one for a four, right away to the garden walls of the houses in the Avenue Road; and that's a good one, too, my little man, right over Willie's head, and almost knocked mother's bonnet off.

Now, we will go to the top of the hill. The sun is setting behind Kilburn, the shadows are getting very long, the perambulators are on the move, the little crowd listening to the soldier who is preaching—there are preaching and praying soldiers now, as there were among Cromwell's Ironsides or Havelock's regiment—are beginning to disperse; and when we have rested a little, we must make our way home. I like Primrose Hill, that's a fact, and you shall come again, Willie and Jenny, and have another run.

WORK! WORK!

From the sea the tireless sun
Mounts, his daily course to run;
Month by month the moon on high
Circles o'er the midnight sky;
Rivers with unresting sweep
Still roll onwards to the deep;
Trees and plants, with foliage fair,
Fan and cool the summer air;
All things work, and thus fulfil
Their all-wise Creator's will.

Thou for whom the sun was born,
Whose is the rich glow of morn,
And the moon's soft gleaming light
Silvering the dark face of night;
Thou for whom God bade the earth
Give to flowers and forests birth;
Thou for whom, with her rich hoard,
Was earth's labouring bosom stored;
Thou of all God's works the latest,
Likest unto him and greatest;
Thou, whose life *beneath* the sky
Like a short dream passeth by,
But whose life *beyond* must be
Lasting as eternity;
Wilt thou live in listless sloth?
Wilt thou, like a heedless moth,
Flit round pleasure's flickering flame,
Till, self-scorch'd, thou sink'st in shame?
Shall each precious God-sent day
Pass in tattling, trifling pl y?

Loiterer, gird thee for thy race!
Flinching soul, thy conflict face!
God thy work to thee has given;
Work in faith—then rest in heaven.

—*Selected.*

Growth of Cotton Manufacturing in America.—In the year 1860 the cotton crop of the United States was 5,000,000 bales. Of this amount 1,094,752 bales, or more than one-fifth of the aggregate, was consumed in the manufactures of the country. It will be seen, therefore, that we have made much more actual progress in this business than has been generally known. The growth of the cotton manufacture at home may be seen by the following figures:—In 1791, 5,500,000 lb.; 1801, 9,000,000 lb.; 1811, 17,000,000 lb.; 1821, 50,000,000 lb.; 1831, 77,500,000 lb.; 1841, 97,500,000 lb.; 1850, 245,250,000 lb.; 1860, 422,704,975 lb. This progress has been both steady and remarkable, and it shows that the protection heretofore afforded to this branch of industry has proved serviceable in fostering the business and setting it forward in the direction of permanence. It is not too much to say that these figures are sufficient to warrant us in looking forward confidently to a period, not remote by any means, when the whole cotton crop of America will go into our own home factories, and be there made up into goods for use. If the home factories took one-fifth of the entire crop of 1860, we may safely state that by 1870 our enormously increased capital and resources will enable us to double our manufacturing capacity in that line.—*Philadelphia Paper.*

*Government Life Insurance.**

In our last article we stated our belief that the rates of premium charged by the Government were lower than those charged by private offices, and we have been favoured with the necessary facts for establishing that assertion.

Here is a comparative view of the annual premium to insure £100 charged by those offices which have the largest connection amongst insurers for policies of small amount:—

Age next Birthday.	Government Insurance Act.	Friend-in-Need Society.	United Brothers' Society.	Victoria Benefit Society.	United Kingdom Provident Institution (with Profits).
21	1 17 11	2 5 8	2 3 0	1 19 2	1 18 4
26	2 1 11	2 10 9	2 7 0	2 4 5	2 3 10
31	2 7 10	2 15 8	2 15 0	2 10 7	2 10 0
36	2 15 4	3 3 0	3 5 0	2 18 2	2 17 6

The advantages here are clearly all in favour of the Government insurers; and if we take the form of insurance wherein the premiums are payable by monthly instalments, we shall see a wider difference yet:—

Age next Birthday.	Government Insurance Act.	Friend-in-Need Society.	British Prudential Society.	United Brothers' Society.
	Premium of 24s. a Year, Payable by Monthly Instalments.	Premium of 26s. a Year, Payable by Monthly Instalments.		
21	58 0 6	47 2 0	48 6 0	41 8 0
26	51 5 4	42 12 0	41 14 0	38 14 0
31	44 16 6	38 2 0	35 8 0	36 0 0

Thus a person, aged 21, insured in the Government office, secures £58 for 24s. a year, whilst in the United Brothers' Society he would only get £41 for 26s. a year—a difference on the wrong side of £17, even if the premiums were the same.

Such facts as these ought to open the eyes of the shrewd, practical, working men who, in a general way, are not slow to perceive in which direction their true interests lie.

And we must reiterate that these comparisons are still further heightened in favour of the Government office, by the perfect security, by the enjoyment of right to benefit *directly the first premium is paid*, and by the *immediate* payment, on proof of death, of the sum insured.

So far, our observations have had exclusive reference to that kind of provident investment which is made for the benefit of those we leave behind us when our part in the battle of life is ended, and one of

"Death's thousand doors stand open"

for our departure. But many desire to anticipate the period of life when their energies may be expected to fail as their need of comforts increases, and out of the abundance of to-day to set aside somewhat for the insufficiency of to-morrow. This can be done by purchasing an Annuity, or annual sum, to be paid regularly to the annuitant as soon as a given time has expired. Thus a man, by paying small sums out of his earnings while he is strong, active, and in full work, may secure for himself an annuity, to commence as old age comes on him, and which will take the place of his wages or salary when he can no longer earn a livelihood.

We have already specified the different ways in which life annuities are obtainable. An *immediate* annuity is an annual sum payable to the purchaser, commencing immediately after the purchase, in consideration of a premium, which is paid in one lump sum. A *deferred* annuity, on the contrary, is an annual sum payable to the purchaser, which is not to commence until after the expiration of a specified term of years, and it may be purchased either by a single premium, or by an annual premium extending over the term before the annuity is payable. Another very excellent provision is that of the *deferred monthly allowance*, which is a sum payable every month to the purchaser, commencing on the expiration of a given number of years, and the purchase money may be paid by monthly instalments, during the period before the monthly allowance becomes payable. Two different rates of premium, or purchase money, as it is usually called when relating to annuities, have been framed, one of which provides for the return of the purchase money in the event of death before the annuity or allowance commences, or if the purchaser wishes to put an end to the contract. Of course the rates on this plan are higher than when no such condition is stipulated for.

In the case of annuities, as in life insurances, purchasers may begin with the minimum amount purchasable, and may increase it as their circumstances will allow. Husband and wife are looked upon as two distinct persons (for the purposes of this Act, we mean, of course), and may separately take the full benefit of the maximum limits of provision granted by the Act.

The tables relating to annuities would occupy too much space for us to print even portions of them, but they may readily be obtained, with all necessary information on the subject, through any post-office.

It only remains for us to give such a brief outline of the *modus operandi* as may be useful to any of our readers who may be induced to follow the advice, which we very earnestly tender to them, to register their names as speedily as possible on the Postmaster-General's good books.

The benefits of life insurance may thus now be obtained through the Post-office without difficulty, and in the following manner:—

1. A person who desires his life to be insured by the Postmaster-General, should apply for a form of proposal at any one of the post-offices which have been opened for insurance business. He can ascertain at any post-office, during the hours appointed for the transaction of Money Order business, the names of those post-offices which have been opened for insurance.

2. The proposal form should be filled up by him, or by some one on his behalf, and he can take it away from the post-office to his own home or place of business for that purpose. He will have to state his name, trade, calling, or occupation, where he lives, where he was born, the date of his birth, the sum for which he wishes to insure, and the manner in which he proposes to pay for the insurance. Instructions for filling up the form are printed thereon.

3. He will also have to answer certain questions, printed on the form, as to his own health, occupation, and habits, and the health of his parents, brothers, and sisters, and he must answer these questions truly to the best of his knowledge.

4. He must also, if possible, obtain a certificate of his birth, either from the Registrar of the district in which he was born, or, if it suits him better, from the Registrar-General of births, deaths, and marriages, at Somerset House, Strand, London. The certificate may be obtained by personal application between the hours of ten and four, or by letter to the Registrar-General. The letter must state that the certificate is required for insurance purposes, must give as nearly as possible the place and date of birth, and the Christian names and surnames of the parents. In the letter must be enclosed postage stamps to the value of 3s. 7d., that being the fee payable by law for the certificate. If the person desiring his life to be insured happens to have been born before the 30th June, 1837, or not to have been born in England or Wales, he will not be able to obtain a certificate of birth from a district Registrar or from the Registrar-General, and he must then endeavour to obtain a record of his birth or baptism from the minister of the church or chapel at which he was baptised. If he cannot do this, he must state on the form what other means he has of proving that he was born at the time stated by him. If any respectable person who has known him from his birth will declare before a magistrate that he was born at the time stated by him, such declaration will be accepted as proof of the birth having taken place at the time stated.

5. He must also state on the form the names and addresses of two householders, and the names and addresses of two persons under whom he has worked or served, and who can give the necessary information as to his age, health, and habits.

6. When he has filled up the proposal form in the manner described, he must take it, together with the certificate of birth or baptism, to one of

* Concluded from page 371.

the post-offices which have been opened for insurance business, and there sign the declaration which is printed at the foot of the form in the presence of the postmaster.

7. The proposal form and certificate of birth or baptism will be forwarded to the Postmaster-General in London, who may direct the person who desires his life to be insured to present himself to a medical man for examination; and the Postmaster-General will endeavour to select for this purpose a medical man living near to the person desiring his life to be insured, and who will make the examination at a time convenient to that person.

8. If the proposal is accepted, there is no further trouble than is involved in the payment of the stipulated premiums at the proper periods at the most convenient Money Order Office, the receipts for the premiums being kept in a little book similar to the ordinary Savings Bank deposit books.

These are the essentials of the transaction, and the person proposing to insure is put to no charge for medical examination, or for anything whatever beyond the cost of the certificate of birth, or other evidence of age.

The Post-office authorities have sought by every possible means to carry out the beneficent designs of Mr. Gladstone, and it remains for the working men of England to show that they can understand and appreciate a measure which more than any other legislation of our times is capable of helping the really industrious and prudent man by showing how best he can help himself.

Of the principle of life insurance, M. Edmond About, the distinguished French writer, has thus recently written: "Either the soul is immortal, or that light which shines within us is extinguished by death. On the first hypothesis, the assured will enjoy, at least in prospect, the blessing which he will leave behind him. On the second, he will console himself in thinking that he shall not die altogether: his good work will survive and prolong for some time his useful existence."

THE MINIATURE OF THE QUEEN FOR MR. PEABODY.

THE word "miniature" scarcely represents what the importance as regards the size of the likeness will be, for, though only half length, the painting is 14 inches long by 10 inches wide. For the first time for the presentation of her portrait to a private individual, Her Majesty sat in the only robes of state she has worn since the death of the Prince Consort, the costume in which she was attired at the opening of the present Parliament. This was a black silk dress, trimmed with ermine, and a long black velvet train, similarly adorned. Over her Mary Stuart cap is the demi-crown, while the Koh-i-noor and one rich-jewelled cross, presented by Prince Albert, form her only ornaments. To complete this portrait, Her Majesty gave Mr. Tilt several long sittings, and has now expressed her unqualified approval of the water-colour shown at Mr. Dickinson's. This, however, is but the commencement of the process. The portrait is to be done in enamel by Mr. Tilt, on a panel of pure gold. In these enamel paintings, to bring out all the brilliancy of their colours, they have to be burnt in a furnace at least five, and generally six times. The heat to which they are subjected is so intense as to be only short of that which would fuse gold, and the most exquisite care is necessary neither to let the picture heat too soon, nor, above all, cool too rapidly, as in either case the enamel would crack. So large an enamel portrait has never been attempted in this country. It has, therefore, been found necessary to build a small heating furnace specially for the execution of this work. It will take about six weeks to complete all the processes, when the picture will be mounted in a most elaborate and massive chased frame of pure gold, surmounted with the royal crown enamelled on the same metal in colours. Altogether it will form a gift worthy both of Her Majesty and of the gentleman to whom she presents it. In fidelity of portraiture the likeness is not to be surpassed, and, of course, it was not till after many and long sittings that such perfect success was accomplished. After being submitted to the Queen on its completion, it will be forwarded to Mr. Peabody, who intends to deposit it where it may be best seen in a large institution which he has founded in Boston, his native town.

SOUTH LONDON DISTRICT OF ODD FELLOWS.—From the annual statement of this association for 1865, it appears that the amount of the capital of the Manchester Unity, to which it belongs, was, on the 1st of January, 1866, £56,680. Of the capital, £45,667 formed the sick and funeral fund. The number of members belonging to the Unity was 368,847, besides 19,143 in the colonies. There had been an increase of 14,481 members during the year 1865.

THE MACHINE *v.* THE WHEELBARROW.

A NEW machine, which is attracting much attention, is at work on the Seine. The boats which bring up the broken pebbles for macadamising, or for laying the foundations of buildings, are just now moored off the Prefecture de Police as being the nearest point to the new Hotel Dieu, at present in course of construction. Between the shore and the nearest boat is moored a little flat-decked craft, on which is fixed a steam-engine turning on a pivot, armed with a long iron bar, placed at the angle of 45 degrees. By means of a chain, which is wound by steam over a wheel, an iron bin, which contains a cubic mètre of the broken pebbles, is lifted from on board the vessel, carried off, and deposited on the quay in less time than it would take to describe the manœuvre. Another dangerous and degrading toil is thus dispensed with, and the wheelbarrow traversing the narrow plank, with its heavy burden and tottering conductor, will be seen no more.

BELGIAN METHOD OF TEACHING DRAWING.

LAST autumn, M. Hendrickx, inspector of the drawing classes in the communal schools of Brussels, was authorised by the Minister of Public Instruction to make an experiment in the Lycée Bonaparte, in Paris, of a system which is reported to have yielded excellent results in Belgium. Fifty adults answered the invitation; they consisted of students of the Polytechnic and Philetechnic Associations, commercial clerks, fitters and mechanics, in the employ of the Orleans Railway Company, and other workmen. With one single exception, the whole of these adult pupils were totally ignorant of drawing. After twenty-two lessons of one hour's duration each, with some unaided practice at home, the pupils were able to execute complicated designs with a firm hand and considerable taste. At the urgent request of the class, the Minister has decided that the experiment shall be continued, at the cost of the State, in the Lycée Charlemagne, by M. Bourson, painter, and associate of M. Hendrickx. The same gentleman has been appointed to conduct a similar course for the pupils of the primary normal school of Versailles, and another especially adapted for the teachers of the Seine-et-Oise. The system is also now under trial at Lyons.

The course established at the Lycée Bonaparte was mentioned in the *Journal* at the time; and it will be interesting, and perhaps useful, to reproduce a *resumé* of the report made on this method of teaching, which M. Armand Dumaresq, a well-known historical painter, and president of one of the classes for the Exhibition of 1867, has made officially to the Minister of Public Instruction in France.

M. Dumaresq says that the method of M. Hendrickx is a compilation from ancient systems. The bases of the science of drawing were laid down by Leonardo da Vinci and by Albert Durer, who published a treatise on drawing in 1557. All modern authors, says the reporter, from Paillot de Montabert downwards, have borrowed from Albert Durer. The work of the last-named artist comprises the geometric system of including within a square or a cube the figure that is to be demonstrated. M. Hendrickx quotes this idea, and makes it the foundation of his whole system. This method of framing in a known figure the design to be drawn is good, as it enables the pupil to pass readily from the known to the unknown; he finds in the horizontal and perpendicular lines of the diagram a series of starting-points, which serve the same purpose as those used by sculptors for the roughing out of a block of marble.

Albert Durer advocated the principle of designing by compass and rule as the Greeks did; Michael Angelo was the first to set up the dictum that an artist's compass should be his eye, and from that time the painters, Raphael amongst the first, abandoned the method of the Greeks, and a revolution came over art.

M. Hendrickx, in taking up this forgotten method, has, then, not invented a new system, but only made a discovery in the past. A good idea of his mode of carrying out this system will be obtained from a description of four books of the first and second degree. The first two contain the demonstration of lines and surfaces, and their application to forms represented geometrically such as cubes, figures derived from the cube, and invariably enclosed in a cube, sections, cylinders, cones, pyramids, circles, and spheres, and, lastly, curves of the teeth of wheels, balusters, and vases, the series being carefully graduated. The other two books contain the construction of the principal generic figures:—First, a portion of forms of the first degree, with their shadows; then the elements of the proportions of the Tuscan order; of the leaves of living plants, such as the vine, oak, laurel, narcissus, and acanthus, and their analysis in an ornamental point of view; lastly, the proportions of the human head and body. These models are well designed and well chosen, and their decorative quality is made clearly apparent to the student. The third series of books, or copies, contains the complement of the two former, and prepares the pupil for the study of the round.

Whatever may be the merit due to M. Hendrickx for having adopted the method of the Greeks as taught by Albert Durer, his practice in teaching deserves the greatest attention—the principal point consisting in the fact that the students draw with chalk upon the black board from the model produced before their eyes, in the same manner, by the teacher, who, at the same time, explains to them the method by which he produces what he places before them for reproduction. The pupils copy the drawing upon whatever scale they please, and the teacher points out any errors into which they may have fallen. Between one lesson and another the students are expected to reproduce on paper what they have previously drawn on the board, choosing, as before, whatever scale or size they please, but, of course, preserving the proportions. The result of this reproduction from memory gives the exact measure of the appreciation of the lesson.

Scientific and Useful.

A METAL THAT EXPANDS IN COOLING.—Lead, 9; antimony, 2; bismuth, 1 part. This metal is very useful in filling small defects in iron castings, &c.

DUCTILITY OF GLASS.—A tube of glass may be drawn, by careful manipulation, with an external diameter of only $\frac{1}{1000}$ of an inch, yet still retaining the character of a tube, with its internal orifice and an external and internal surface.

ALTHOUGH every possible care has been taken in the construction of Greenwich Observatory to obviate vibration, the delicacy of the instruments is such that the sudden shutting of the outer gate is said to be sufficient to cause a star to start out of the field of the equatorial telescope.

INCOMBUSTIBLE STRAW.—It has been proved, by repeated experiments, that straw, saturated with a solution of lime, or common whitewash, is incombustible. This fact is of great importance, especially as thatch is not only rendered fireproof, but more durable. A solution of alum has been tried, but being soluble, the rain destroys its virtues.

ALUMINIUM ARMOUR.—A trial has just been made at Florence of a cuirass in aluminium, which is as light as an ordinary waistcoat, nearly as flexible, and capable of turning a musket-ball fired at the distance of thirty-eight paces, and of resisting a bayonet thrust from the heaviest hand. Each cuirass costs only 25 francs. Two regiments are, it is said, to be immediately provided with them.

THE METALLIC SAND OF NEW ZEALAND.—Travellers along the sea-shore of New Zealand have to wear veils to protect their faces and eyes from a fine metallic sand which rises with every puff of wind. This sand proves, upon analysis, to be the purest ore of iron known. Its composition is:—Peroxide of iron, 88·45; oxide of titanium with silica, 11·43; loss, 12. Experiment shows that the ore yields in the furnace 75 per cent. of the best iron; or by cementation an excellent quality of steel. The smelting was done in a little furnace, with a hearth seventeen inches diameter and ten inches deep. A ton of fuel (coke) made a ton of metal titaniferous, which, added in the proportion of five per cent. to ordinary steel, transformed it to first quality.

IMPROVEMENTS IN GUN-COTTON.—Gun-cotton is now made into ropes for storage, and kept under water. When an order is received at the manufactory, a few hours suffice to send the cotton on its way. It has been found that by making the ropes with many air channels through the mass the cotton explodes almost instantaneously, and is as violent in action as the strongest fulminates. Charges for guns are now made in two parts—an exterior composed of cotton of loose texture, the ignition of which starts the ball, and an interior of denser material, which supplies the gas necessary to keep up the constantly accelerating speed of the ball. The result is a great gain in initial velocity. Compared with gunpowder in an Enfield rifle, the cotton gave a trajectory having an incurvation of $2\frac{3}{8}$ inches and the powder $3\frac{3}{8}$ inches in the first 100 yards.

NEW SUBSTITUTE FOR GUNPOWDER.—Among the substitutes for gunpowder that have been proposed, the most recent is *gun-paper*, which is said to be superior to either gunpowder, gun-cotton, or gun-sawdust, in economy, efficiency, and safety. Time, however, must test the validity of these extraordinary claims to public favour; but, so far as experiments have yet been made on the subject, the results appear very satisfactory. Gun-paper is formed by impregnating paper with a composition consisting of about 9 per cent. chlorate of potash, $4\frac{1}{2}$ nitrate of potash, $3\frac{1}{4}$ ferrocyanide of potassium, $3\frac{1}{4}$ powdered charcoal, 0·05 starch, 0·06 chromate of potash, and 79·9 water, the liquid having been boiled for an hour. This mixture is perfectly safe; and the dry paper is exploded only by fire, or an equivalent temperature, but not by percussion. The sheets of prepared paper, while wet, are made into rolls of any required size, and are dried at a temperature of 212° Fahr.; they then present the appearance of a compact greyish mass, and may be cut into cartridges of suitable length. These are said to be more powerful, and to cause less smoke and fouling than those of ordinary powder; and may be protected from damp by coating them with a solution, in acetic acid, of xyloidine, obtained by acting on paper with nitric acid.—*Scientific Review.*

"CANNELITE."

Cannelite has been found in New Brunswick in beds of from two to thirteen feet in thickness, and the best quality when distilled yields 50 gallons of crude oil to the ton of 2,240 pounds. The volatile products are obtained with great facility; the mineral does not swell in the retort, and is completely exhausted within eight hours. Some varieties leave a coke behind, like vesicular lava, others a bulky ash, nearly of the same form as the original material, but containing (according to the analysis of Dr. Hayes) 16 per cent. of fixed carbon. There have been imported into Salem, Mass., 3,000 tons of this mineral, which yielded 50 gallons to the ton. The further importation into the States is stopped by the abrogation of the reciprocity treaty with the British provinces. The available deposits at present known are estimated to exceed 20,000,000 tons, capable of producing 1,000,000,000 gallons of crude oil, of the specific gravity of 29° Beaume, and this can be shipped free on board at 12½ cents per gallon. The same mineral has been discovered in Nevada; and a similar substance, "canuel," is being worked in Wales. These discoveries compel us to think of the treasures slightly veiled from our view, which increased scientific knowledge is gradually discovering on our eastern seaboard—metals of all kinds, building stone of rare beauty, coal, oils, and other substances, waiting for industry and capital to render them serviceable—treasures not so dazzling as the piles of precious metals from our Pacific States, but equally valuable to a practical people. The mineral wealth of the great American continent seems altogether inexhaustible.

THE ATLANTIC TELEGRAPH.

The new Atlantic cable is now completed, and it has been arranged that the *Great Eastern*, with this and the remains of the old line on board, shall sail from Sheerness on Saturday, the 30th instant. Stopping for a time to coal at Beerhaven, she will reach Valentia about the second week of July, and the shore end of the cable having been connected with the main line, the operation of laying will be commenced. The big ship will first lay the new cable from the Irish coast to Trinity Bay, Newfoundland; and, assuming this to be successfully done, and telegraphic communication established, she will then steam back to the middle of the Atlantic, and attempt to pick up the cable lost overboard in July last. The 1,200 miles of cable now lying on the bed of the Atlantic are to be connected with the 1,100 miles left on board; and, if all goes well, the ship is to retrace her course to Trinity Bay, and so complete a double line of union between the two continents. The new cable differs from the old in only two particulars. The conductor, it will be remembered, is composed of seven copper wires—six round one—each wire separately imbedded in Chatterton's compound, and the whole surrounded by layers of gutta percha, so as to form a "core" half an inch thick; this, again, is further protected by ten solid iron wires, each covered with five strands of Manilla yarn, the wires being laid spirally round the core. In the old cable the yarn was tarred; in the new it is left white, to decrease weight and facilitate the discovery of foreign substances, and the iron wires have been galvanised. This year 2,730 miles of cable will be shipped, to complete both lines, the length put on board last year being 2,300 miles.

Iron Smelting.—At a recent meeting of the London Association of Foremen Engineers, Mr. J. M. Aubridge (of Messrs. Simpson's, Pimlico) read a paper on "The Various Modes of Smelting Iron, and their Results." He proceeded to trace the history of iron smelting from the very earliest periods of recorded time, and, by means of diagrams, which he drew *en courant*, illustrated clearly the gradual progress of improvement down to our own day. As a practical ironfounder, the reader recounted much of his own experience, and said that the great secret of economical and effective smelting consisted in obtaining for the purpose a rapid current of common air, so as to produce complete combustion of the fuel employed; and the speedy creation of a large quantity of carbonic oxide gas was the consequence of such an arrangement. The blast-pipes should in all cases fit the tuyere holes closely, so as to prevent the waste of air and to direct the full force of the current into the furnace. It was desirable also to adopt what was known as the "drop bottom" in furnaces, so much used in America, and, he was sorry to say, as yet so seldom adopted in this country. It was desirable to lessen, as far as possible, the expenditure of manual labour, and this last arrangement was essentially a step in that direction. After a man had been engaged in working a furnace for several hours, it was rather hard to give him the task of raking it out and quenching it. By means of the drop bottom this might be accomplished in a few minutes, whereas it was a laborious and tedious process in the other case, and much more costly.

Bornemau says that the softest Bessemer steel is at least as strong as the best Swedish chain iron, and its strength increases with the per-centage of carbon to one per cent., when it is equal to about double the strength of the best chain iron.

Facts about Ventilation.

Since men must breathe, it is as well to understand the conditions under which it can best be done, so far as the supply of the material is concerned. According to Dr. Percy's admirable and lucid report on the ventilation of the House of Commons, to which we have already referred, air itself is somewhat an imaginary article. The modes in which we suppose that we can best attain it are perfectly illusory. For instance, in summer we open our windows with a view to let in fresh air, and this mode of obtaining air is so associated with our most natural and common experience, that few persons are prepared to learn that more air can be obtained with the windows shut than when open. This Dr. Percy, in his admirable report on the ventilation of the House of Commons, assures us has been clearly and repeatedly established by experiment.

When the windows of the Houses of Parliament are opened, the quantity of air which ascends into the House is much diminished, and the temperature generally rises several degrees a few minutes afterwards. That a room should grow warmer when cold air is admitted into it is certainly a violation of what any one would ordinarily expect. Those, however, who read of this recently established fact, should use precautions when acting upon it. They must not overlook that Dr. Percy's position is, that a better system of ventilation can be devised and put in operation than mere ventilation by the open window. But if there be no ventilation at all in the house, the windows had better be opened, as that mode of ventilation is far better than none.

The complaint made by members of Parliament as to the temperature of the House, are often of a very curious and contradictory character. A member who has long been fasting will complain that the air is cold; one who has just dined and taken wine will complain that it is too hot. An aged member wishes the place warmer; a younger member would like it colder. One accustomed to cold baths is comfortable in a low temperature; one who does not use cold ablutions is uncomfortable under the same conditions. A soldier who has just come home from the East finds the House chilly; another gallant officer who has just returned from a command in the north, finds it oppressive. A member feeling unwell wishes Dr. Percy would let in more hot air, and when he becomes better he applies for colder air. It has occurred that complaints have simultaneously proceeded from two members sitting either side by side or close to each other, one complaining that the temperature was uncomfortably low, and the other that it was uncomfortably high. It should ever be borne in mind, observes Dr. Percy, that our individual sensations may be treacherous in the indication of temperature, as we are not accurate, invariable, and unimaginative instruments like thermometers; and that a temperature which may be agreeable to ourselves, may not be equally so to our neighbours.

In the discussion upon Ventilation which occurred at the Social Science Congress at Edinburgh, three or four years ago, Mr. Rawlinson stated that, when Windsor Castle was sought to be improved in the matter of ventilation, after the death of Prince Albert, the most perfect plan that could be devised, consisted of the very simple process of making the windows open at the top, and keeping a fire at the same time in the room. In the absence of scientific modes—such as are adopted in the House of Commons—we believe this is the most effectual method suitable to all habitations. It was also stated, on high medical authority—if we remember rightly, that of Dr. Christison—that, in cases of contagious fever, no healthy person would become infected if that plan of ventilation was adopted. It would be necessary that only one patient should be in a room. The attendant would not, under such circumstances, be liable to catch fever.

Various systems of ventilation have, from time to time, been adopted in the House of Commons, and the most costly have proved the most futile. Sir Goldsworthy Gurney was the advocate of the steam jet plan, for some time applied to the ventilation of collieries. The waste steam rushed up a funnel, dragging after it gaseous products, and creating an active current. Another was the plan of mechanical propulsion by fans. That has long since been abandoned, and the greatest authorities on ventilation have at last agreed that the plan adopted in collieries at the present time is, after all, the best. The air in the House of Commons is now exclusively put in motion by means of heat, precisely on the same principle as in most of our collieries. When air is heated it expands, and, as it does not thereby increase in weight, it becomes specifically lighter; ascending through cold air for the same reason that a balloon, filled with coal-gas, rises in the atmosphere, or oil in water. Heat is applied by coke fires of the simplest construction. There are two great up-cast shafts—namely, one of the turrets of the Victoria Tower and the Clock Tower. There are, also, the following additional up-cast shafts—namely, the Peers' shaft, the Commons' shaft, the Speaker's shaft, the river-front shaft, the north end shaft, the west front shaft, and the Black Rod shaft. In the first two shafts there are coke fires for the sole purpose of causing an upward current of air.

One of the highest scientific and practical living authorities on the subject of ventilation, General Morin, has also decided in favour of this system. When properly carried out, and carefully attended to, it is all that can be desired, both in regard to simplicity and efficiency. It requires no machinery, and is not liable to any sensible derangement, except during sudden gusts in tempestuous weather, and the only labour which it needs is that of a common stoker. Such is the statement and very words of Dr. Percy, and seldom has a more interesting and instructive report been presented to the country than his.

Self-acting Railway Signals.—Sir Cusack P. Roney describes a new signal which he has seen in Paris. It is the invention of Signor Vincenzi, an Italian engineer, and works by electric agency. It is difficult to describe, but the mechanism comprises cast-iron cases placed along a railway, and containing electric apparatus, which causes the whistle of the locomotive to sound when the way is not clear, or when a train in advance has just passed. The communication between the apparatus and the engine is made by means of steel arms, which meet and act together. The inventor is said to be willing to test his apparatus at his own cost on an English railway.

A New Explosive.—A few days ago, the master of the ship *St. Joseph*, recently arrived at Boston, U.S., having found a suspicious box on board his vessel, marked "sodium," flung it overboard. As soon as the package touched the water an explosion occurred, lifting the sea in an immense column to the stern of the vessel. We infer from a San Francisco journal that it was a new chemical mixture called sodium-amalgam. This material is never manufactured in very large quantities, though it has been advertised for sale in San Francisco, one firm claiming to have as much as 200 oz. for sale. The amount does not seem large, but when it is understood that the explosive power of 1 oz. of sodium is equal to that of about 25 lb. of gunpowder, or 2½ lb. of nitro-glycerine, it can readily be conceived that even 15 oz. or 20 oz., exploded in one place, would create immense havoc. And when one further reflects that even so little a thing as a spoonful of water coming in contact with 200 oz. of sodium would occasion an explosion equal to that which would be occasioned by the ignition of 5,000 lb. of powder, or the concussion of 500 lb. of nitro-glycerine, we can form some conception of its tremendous destructive power.

Pinholes in Photographic Negatives.—This defect in negatives, which is not only very annoying, but of frequent recurrence, has for some time been known to arise, with old silver baths, from the formation of crystals of iodide of silver, which adhere to the collodion film while in the bath, and during development, and in the end leave a small hole, that becomes more distinct when the print is strengthened. These crystals make their appearance most usually in warm weather, since the iodide is less soluble in heat than in cold. But pinholes exist which cannot be traced to this cause; and they have been shown by Dr. H. Vogel to arise from the presence of crystals containing sulphate of silver, due to the use of impure iodisers, impure nitric acid in dissolving the silver, &c. The presence of the sulphuric acid may be ascertained by adding to a portion of the silver bath which is to be tested, after acidifying it with a few drops of nitric acid, a solution of nitrate of baryta, which will produce turbidity, after a while, if sulphuric acid is present. The test will be more satisfactory if the silver is first precipitated with pure hydrochloric acid. The addition of nitrate of baryta to a silver bath for the purpose of throwing down the sulphate, if done with caution, not only produces no injurious effect, but greatly augments the intensity of the negatives afterwards obtained with it, so that they require no strengthening. A certain amount of hardness is imparted; but the addition of a little of a new silver bath will, if desired, prevent this augmentation of intensity. If, however, the nitrate is used in excess, it will itself produce pinholes, as it is a salt of difficult solution in water, and is precipitable in crystals by alcohol.—*Scientific Review.*

Things Talked About.

The Reform Bill is certainly shelved. Payers of a £7 rental in boroughs must wait awhile before they are able to present themselves at the hustings. The amendment carried against the Government would have had the effect, by substituting a £7 rental for a £7 rental, of virtually raising the franchise qualification to about £9, and so excluding many thousands from the privilege of voting. The lodger franchise had not come on for discussion in committee; but, of course, that most important provision shares the fate of the Bill generally. As we said elsewhere, working men who do not live in boroughs in houses rated at £10 must wait for "the good time coming."

But, in fact, questions of home politics are just now overshadowed by the terrible outbreak of a Continental war. Now that the spark has been kindled, whither the fire will reach no man can predict; but we may feel a sad certainty that manufactures, trade, all that makes the working man in every country happy and prosperous, will experience fearful depression. Before a blow was struck, the pressure was beginning to be felt. The Berlin Town Council, we read, is endeavouring to raise a loan of three millions, at a high interest, for the purpose of undertaking public works, which will give employment to starving operatives. Already the very threat of war is reproducing in the Prussian capital the situation of Lancashire during the cotton famine!

The House of Lords has sanctioned the clause in the Metropolitan Railway (Additional Powers) Bill, which relieves the company of the liability to make full compensation to persons who may lose their lives or be injured while travelling in ordinary trains at what are known as workmen's fares. Men who ride in "workmen's trains" are, perhaps, not aware that, by special enactments, the principle of compensation otherwise generally acted on does not apply to them. In no case need the company, however great the negligence of the officials, pay more than £100 to a person injured, or the family of a person killed, if travelling by those trains. Believing, as we do, that these low fares are amply remunerative to the company, we concur in the opinion of Lord Stanley of Alderley, "that railway companies should be liable to the full extent, as estimated by a jury, for injury done to passengers through the negligence of the railway servants. He knew of no sufficient reason to induce the Legislature to order that the family of an artisan should not be compensated to the full extent of their loss in case he should be killed by an accident in a railway train which had arisen, in the opinion of a jury, in consequence of the negligence of the railway company's servants."

A dividend at the rate of 11s. 4d. in the pound has been paid to the depositors in the Birmingham Penny Bank, which recently failed. The number of depositors was 3,228, and the amount of the dividend, larger than was anticipated, is due to a public subscription. The authorities of the Post Office Savings Banks sent down a large number of handbills to be distributed among the depositors, explaining in a very brief manner the objects and mechanism of the Post Office Savings Banks. It was also arranged that, during the three days appointed for paying the dividends to the depositors in the Penny Bank, the Head Post Office Savings Bank in Birmingham should be kept open until half-past eight p.m., to afford to such depositors as might wish to do so an opportunity of placing their money where they can obtain direct Government security for its repayment.

We have before us the rules and regulations of the Kent Agricultural Labourers' Protection Society, which has been in existence a little more than a month. The contribution of members is 1s. a month, and 1s. entrance fee. The head-quarters of the society are at Maidstone. The objects aimed at are—an advance of 6d. a day on the present rate of wages; 2d. in the shilling on the present scale of piecework; 4d. per hour for every hour over ten hours and a half's labour per day; and a cessation of work after four o'clock on Saturday afternoon. As the first attempt at organisation by agricultural labourers, the society claims attention and sympathy.

There has been an exhibition at the Society of Arts, Adelphi, of a collection of competitive plans for labourers' cottages (detached). Prizes of £10 and £5 were offered by the Central Cottage Improvement Society; and no fewer than 107 architects competed. Something in the way of improved dwellings ought to result.

At length, the long dispute at Sheffield has terminated, and the men have gone to work on the old terms; but the employers have promised to consider the claims of any particular section of the operatives who may appear to them to have good grounds for claiming an advance. At present, then, the sixteen weeks' struggle has resulted in the discomfiture of the men, who, it is stated, have lost nearly £80,000 in wages alone, incurred a vast amount of debt, and have the mortification of seeing erected the machinery against which they protested. It is a sad history, and should be taken to heart.

The Scotch ironmasters at Coatbridge have announced their intention to reduce wages, and it is believed that a lock-out, in case of opposition from the men, is decided on. In this case, the strike certainly seems to be on the master's side.

The dispute between the operatives and their employers at Barnsley has terminated in a compromise.

The female power-loom operatives of Heckmondwike, Dewsbury, and Mirfield, have struck for an advance, following the example of the blanket weavers. The very novel feature of a conference between female delegates and their employers was presented. The reporter, who can scarcely avoid a joke at the expense of proverbial female talkativeness, says:—"The women, of course, had plenty to say, the debate lasting over two hours. The origin of the strike, and the manner in which it had been conducted, were freely commented upon by the gentlemen, but the women expressed their determination to stand out for the advance. The appeal to reason was followed by a little coaxing, which had the effect of inducing the female delegates to agree to go on at an advance a halfpenny per wartern for two months, providing the manufacturers would agree to give another halfpenny at the expiration of that period."

A fishing association is about to be established at Dartmouth, in Devonshire. The capital is £10,000 in £5 shares.

The miners of some of the largest collieries in South Wales have threatened a strike for an advance of wages, and notice to that effect has been served upon the employers, who immediately convened a meeting, at which it was determined to resist the demand, and to establish a permanent masters' association. The first resolve of the new association is to the effect that, so far from conceding an advance of wages, the time has arrived when a reduction became necessary, and it has been ordered that this decision be communicated to the men. So that, we fear, a protracted and disastrous contest is imminent.

The seamen on the Tyne have resolved to strike, unless an advance of wages is conceded. They ask for £5 per month for the Baltic, Quebec, and British colonies in America; for the Mediterranean, £4; and for the southern trade beyond the equator £3 10s. per month.

It is stated that the Board of Treasury contemplate a measure regarding clerks in public offices, which, though doubtless intended to have a wholesome effect, may, if carried out, be productive of considerable annoyance, if not hardship. All clerks in Government offices are to be prohibited from connecting themselves in any way with public companies. The object, of course, is to keep the clerks aloof from extravagant and imprudent speculations; but it may have the effect of interfering with such provident and admirable associations as the Civil Service Co-operative Supply Association, the shares in which are nearly all held by persons in the employ of Government.

The members of the Clyde Shipbuilders and Engineers' Association have decided on opening their works to such non-society men as are willing to work on the terms offered. They are to work fifty-seven hours a week, and be paid fortnightly. The members of the association declined to have a conference with the delegates or members of Trade Unions, a step which does not promise to smooth the way for a settlement of the dispute.

Water-Meter.—A premium has been offered by the Industrial Society of Amiens, in the following terms:—"The proprietors of steam-engines are in want of a water-meter which will indicate exactly the quantity of water injected into the boiler, whatever be the pressure. This apparatus must be one easily set up, not subject to get out of order, and capable of registering the quantity of water to within two per cent. of the actual volume. It is not a memoir that the society wishes for, but an apparatus in working order, on which experiments can be made; and if a water-meter be presented appearing to be of practical utility, the society will use every effort in its power to promulgate the use of the contrivance. The meters to be experimented on should be sent to the office of the society before March 1, 1867."

New Hygrometer.—A new hygrometer has been recently invented, and presented to the Academy of Sciences, by M. Monier. It is in the form of an aneroid barometer, about 4 in. in diameter, and 1 in. in thickness, the rim being pierced to give admission to the air. As in the hygrometer of Saussure and others, the sensible organ of the instrument is a hair, but by a peculiar arrangement M. Monier is able to employ a hair 14 in. long, which gives his instrument great sensibility. The graduation of the index face is effected in the following manner:—The instrument is placed under a bell-glass upon unslacked lime, and the point at which the needle rests is marked zero; the lime is then replaced by a sponge dipped in water, and the new position of the needle marked as 100°. The index is then subdivided into 100 equal parts. A small thermometer is fixed on the face of the instrument. The new hygrometer is perfectly portable; the hair is stretched by a watch spring of which the tension is only equal to three-tenths of a gramme. The inventor says that to obtain an idea of the delicacy of the new instrument, it is only necessary to place it in a room in which the gas has just been lighted, and immediately the steam arising from the combustion will act upon the hair and cause a deflection of the needle; or place the hand around the case of the hygrometer, and the needle will immediately advance several degrees.

Co-operative Intelligence.

Saltley.—The workpeople of the Britannia Carriage Works, Saltley, have established an association, called the "Britannia Co-operative Meat Society," for the purpose of supplying themselves with the very necessary article, meat. The society has been in operation only a few weeks, and has been attended with very gratifying results, as the following statement of the quantity of meat sold on Saturday week last will testify—viz., one ox, one calf, nine sheep, and one lamb. The highest price charged for the best joints has been 9d. per lb., and the quality has been of such a character as would defy competition with any joint sold at the butchers' shops at a much higher price.

General Information.

CLUBS AND INSTITUTES.

Newcastle Working Men's Club.—From the recently published report of this useful institution we learn that the number of members during the quarter has been three honorary, one yearly, 22 half-yearly, 100 quarterly, 87 monthly, and 223 average weekly (the large number of 2,897 weekly tickets having been sold), giving a total weekly average of 378 members, which, being compared with the similar quarter of last year, shows an increase of 26 members per week. What is peculiarly gratifying, too, in connection with this increase in the number of members is, that it consists of the best and most intelligent class of workmen, the holders of half-yearly, quarterly, and monthly tickets. The news-room of the club, which is large, convenient, and well lighted, is well supplied with daily and weekly newspapers, and the best and most popular magazines. The classes during the quarter have been tolerably prosperous. It is in contemplation shortly to hold a chess tournament. The Monday evening entertainments during the quarter have been very successful. The weekly receipts from the entertainments this quarter are nearly fifty per cent more than during the similar quarter of last year, whilst the expenses of management have been considerably reduced. The income for the quarter (inclusive of a balance of 12s. 10½d. from the previous quarter) has been £61 15s. 10d., and the expenditure £53 6s. 0½d., leaving a balance in favour of the club of £8 9s. 9½d. The committee, during their brief period of office, have made strenuous efforts to sweep off the existing liabilities of the club, which at the commencement of the quarter in March amounted to £38; in this they have partly succeeded, and when the increase in the number of members is taken into consideration, they may reasonably hope shortly to have the pleasure of announcing the Working Men's Club to be entirely free from debt.

EMIGRATION.

News of the Emigrants in Queensland. The Dark Side of the Picture.—A late resident of Over Darwen, Lancashire, writing from Queensland to his relatives, says:—"The fever is raging very badly here at present through the drought, for there has only been one shower of rain since Christmas. It would make you grumble if you were to pay 5s. for a small cask of dirty water, which we are doing at present, while you can sit and watch the running brooks of clear water, and listen to the little pebbles that run at the bottom, and the thrush and blackbird pouring out their sweet songs; but that is not so here, for we have no song birds—only a chirp and off they go, though there is plenty of beautiful birds. I am going to tell you the true state of things in Queensland at the present time. There is Mr. J——, of L——, and Mr. K——, of B——, sending out as many poor folks as they possibly can; but, mark you, they do not send out many men who have got capital. I should like to ask Mr. K—— or Mr. J—— how all the poor emigrants have to live when they arrive here, for there are thousands of honest, sober, and harkworking men walking the streets of Brisbane, and cannot get a job of any sort of work; and when you do get work, you do not know whether you will get paid for it when you have finished. I know men who have bought both houses and land, that would gladly sell all they have—yea, even for less money, that they might but put their foot once more on English soil. They tell the men at home that they can get plenty of work and good wages in Queensland. Perhaps they might do so when Mr. K—— was out here; but let him come now, and he will find a great contrast between those days and now, for there are as good men as ever he was (and in the same business) that would gladly take a day's work with the pick or shovel if they could get it. If a man is getting £1 a week at home, he is far better off than a man who is getting £2 a week out here. I went down to town last week, and was there when the ship *Light of the Age* arrived, from Scotland, with about 400 poor emigrants upon it. The day after (being Good Friday, we had a holiday) I and my mate went down to the depôt: it was ten o'clock in the forenoon when we arrived there, and I there saw a poor woman with a little child in her arms, eating a hard ship biscuit, and not a drop of water or anything to drink to it. The rest had not broken fast at that time. I think it high

time that a stop should be put to such like carryings on."

Another View of Queensland Emigration.—A shepherd, who emigrated from Scotland to Queensland last autumn, in a private letter just received by his friends near Edinburgh, gives the following account of his experiences in the new colony:—"We landed in Rockhampton on the 26th September. We were all taken to the Government depôt and supplied with food, or rations as it is called here, daily. The day after we landed, the agents in the town came and engaged nearly all the single men and women to different masters, and different parts of the country. The single men were all engaged as shepherds—and very few shepherds amongst them. The married couples with no children met with a ready demand at wages from £60 to £70 a year, with their rations—rations for one man or woman per week is 14 lb. of beef or mutton, 8 lb. of flour, 2 lb. of sugar, and ¼ lb. of tea. Single men's wages were from £45 to £50 a year; but being strangers, and not knowing the real wage, they were rather taken advantage of. The wages here for a labouring man is 8s. per ten-hour day, and for shepherds £60 per year. A single shepherd lives in a hut by himself, and cooks his own victuals. I was 120 miles up the country, and saw a good many shepherds at their work. I walked up and down, and stayed in some of their huts all night, where I learned that any person went a sheep-herding in this country, and that the most a shepherd had to do was to put his sheep in the yard all night, let them out in the morning, drive them out to feed, keeping them always in a drove, and return to the yard with them at night. He neither assists at clipping nor lambing. Those who clip get 4s. per score with rations, and those who lamb, 25s. per week with rations. In fact, a man may be a shepherd all his life here and know nothing about sheep after all. Queensland is not what it was represented at home. There are no crops grown here—not so much as a garden at either hut or house. The land is totally covered with trees. The country is so dry and warm that the watering of the garden would cost more than the crops would produce. They count upon nine months of dry weather and three months of constant rain; and I think, by the appearance of the land, that at the end of the three months fully the half of it must be covered with water. It is, no doubt, of deep rich soil; but owing to the want of a regular supply of rain, I do not think it will ever grow crops; while, if there was a regular supply of rain, I think it would grow almost anything. It is spring here just now, and far hotter than summer is in Scotland. Provisions are pretty high here in Rockhampton. They are much as follows:—The 4 lb. loaf, 1s. 4d.; flour, 4d. per lb.; oatmeal, 6d. per lb.; cheese, 1s. 2d. per lb.; butter, 1s. 6d. to 2s.; eggs, 1s. 6d. to 2s. per dozen; beef, 2d. per lb., without bones; mutton, 2d. per lb. No lambs are killed here, being all kept for stock. All kinds of drink is 6d. per glass; porter and ale, 2s. to 3s. per bottle. New milk is 6d. per pint. Firewood, 7s. per cart-load, and that is only for the cartage—the wood costs nothing. Water costs 2s. per week. House rent: I am paying 5s. a week for a hut that would not do for a pigsty in Scotland. Out in the country, however, a house, water, and firewood cost nothing. I had the offer of 30s. a week to fell timber, with my rations, and tent to lodge in; but they would have nothing to do with my wife and children. They wanted twenty men. The trees are all cut three or four feet from the ground."

Correspondence.

*** *We shall be happy to receive early information of general interest from Secretaries of Societies, Clubs, or Institutions, to be addressed to the Editor of the* Working Man, *La Belle Sauvage Yard, Ludgate Hill, London, E.C.*

We do not hold ourselves in any way responsible for the opinions expressed by Correspondents.

A DEFENCE OF TRADES UNIONS.

To the Editor of the Working Man.

Sir,—The seeming bias against Trades Unions, as evidenced in some of the articles on the Labour Question which have appeared in the Working Man, has very naturally given some little umbrage. You have evidently an opinion, and there can be no objection to your right to it; but the responsibility you have is very great to hold a *right* one, and in the investigations and use of it to deal "justly and with judgment" to the parties concerned. Excuse me in saying I do not think that you have done the perfect thing in this matter, in seeing some things too keenly, and apparently not seeing, nor wishing to see, others at all. The faults of the Unions and Unionists you see, and point out very clearly, both by your own remarks, by extracts, and by correspondents; but that the men's leaders are honest, intelligent, faithful, and often right, and that Unions have benefited the members, and obtained advance of wages and improvement of work to the labouring classes in general, I do not remember to have seen any evidence of your knowing. I was, however, glad to see, on Saturday last, in a letter, an extract from Mr. Kettle's "Strikes and Arbitrations," and which (price 1s., very dear, and not likely to get into the hands of working men) gives a hint at the other side of the question, and one overlooked by you in your extract of the 9th—viz., on the injurious results of the bad treatment and want of courtesy shown to workmen by employers. I know the want of even decent manners instanced by your correspondent is not an isolated case. Permit me to add another. In November last, coal was advanced by the Coal Masters' Union in the Barnsley district, at least 20 per cent. on profits. They said this was rendered necessary by the rate of demand; and the colliers—demagogues that they were—took their example, and asked, in November, for a 10 per cent. advance of wages, on the ground that demand for coal was equal to demand for labour, and warranted equally an advance. The written request and the month's notice was duly laid before the Employers' Association, and was, of course, scouted as most unreasonable; and to this day the men's executive have never had an official reply furnished them to their application. A curiously and sinisterly worded anonymous paragraph which appeared in the *Leeds Mercury* next day, stating that the masters had met at Barnsley, and wholly declined to make *any* advance whatever, was all the notice the men had vouchsafed. Of course this led to a strike; a great lock-out was threatened; and ere it came off another effort of the men for an interview was declined, but this time replied to by an attorney, officially. And so another labour struggle followed. Of course the men succeeded; labour was in demand, and the matter was compromised by a "5 per cent. advance and weekly pays" becoming the rule. But it cost thousands to effect what one friendly interview or discussion would have done at once. Now, who were in fault in this matter? Is supply and demand the rule of price? Why, then, not the labourer have its benefits like the masters? Do the masters unite to carry out their own interests and resolutions?—and why not the labourers do the same? And shall the masters appoint officials and executives, with bonds and penalties to enforce conformance, and yet ignore the same action and organisations of the men? Shall Rupert Kettle call John Pot "black face" without John Pot retorting?

The fact is, despite the blame on the false principle of Unions at all, they exist simply as effects of causes, *adequate;* and despite of all vituperation on "leaders and demagogues," they will continue to exist and *flourish* so long as masters treat working men like things, or machinery, to be cheapened or thrown away without consideration, and so long as Rupert Kettle himself admits, within the period of twenty years (?), during which the population of Great Britain and Ireland has doubled itself, capital has increased, upon a *moderate* computation, fivefold, and still goes on, making the relative proportion between these quantities every day greater. Under these circumstances, wages have risen, and will continue to rise until the natural effect of supply and demand has taken its free course, and wages have found their market level. This natural level, the men say, has hitherto been *prevented* by capitalists forming Unions to prevent labour rising to its natural level. Capitalists form Unions *first;* and it is to re-act against the masters' action to retard the natural, level price of supply and demand, and the price of labour, that the men have formed Unions at all. That this should be correctly known, and that the proceedings of the men should be correctly reported, is the great desideratum of the day, and an especial duty of the Working Man to ascertain and publish. Mr. Kettle says workmen *cannot* advance wages by Unions; but the workmen know they *have done so* by union; and the agriculturists, who have no Unions, do not get an advance, though Mr. Kettle asserts wages will rise with wealth. Mr. Kettle says the men keep the proceedings of their Unions secret. The committee appointed by the Association of Social Science to consider the relations of Unions and Combinations, say that the men's agents "came forward with promptness, and in some cases have taken considerable trouble to give the committee accurate information;" but, on the contrary, that "the response on the part of the employers was not so general." The reply to Thomas Hughes, Esq., from the master engineers' solicitor, conveys in one sentence their whole policy, viz.: "I don't think it would be agreeable to the masters generally that any authorised statement of their course of action should be made" (p. 170). Now, here we see the fault charged upon the men's Unions disproved, and, in truth, placed upon Unions of the masters. And this would be the case in most other instances if a dispassionate judge fairly investigated. It would certainly be the case in another false opinion, entertained in quarters where ignorance of the facts, or prejudice, prevails, and to which Mr. Kettle has added another imputation and strength, viz., that the leaders of the men are the restless spirits of their class, worthless as workmen, seeking office for pay, and promoting contentions for personal ends and profit. They are generally deemed ignorant, passionate, and prejudiced, blind leaders of the blind. But this same Social Science committee of gentlemen found out and reported "that, so far as they had been brought into personal connection with societies' officers, their experience is, that the leaders are, for the most part, quite superior to the majority of their fellow-workmen in intelligence and moderation" (p. 15); and, "so far as the committee have been able to learn, the officers of Trades Societies are generally the representatives of their constituencies (p. 16). And perhaps the committee had as good an opportunity of judging of the cases stated as Mr. Kettle, or many another self-elected judge—at least they heard both sides. I could go on at great length thus, repeating and correcting the errors reported on Trades Unions and the laws of their political economy, not a few of which I have seen in the Working Man. Allow me, however, to thank you for publishing what appears to me perfect truth, as the case now stands, in the series of articles on the "Law of Wages," by the Whately Professor of Political Economy. There we have both correct facts and fair reasoning; and I know of few greater boons to be conferred than for these articles to be printed together, and distributed to every master and every workman in Great Britain. Many of both sides are most deplorably ignorant and prejudiced, and the teaching and spirit conveyed would do a world of good to both. Even editors themselves might learn a lesson—at least so thinks yours truly,

John Holms.

Holmville Melkley, near Leeds,
June 19th, 1866.

[We insert the above letter to show that we are desirous of allowing both sides to have an impartial hearing.—Ed. *W. M.*]

TO CORRESPONDENTS.

Apiarian.—If you want your bees to work in the boxes early, give them a good start by cementing a few pieces of clean white comb in each box. It is also an advantage to secure all the corners and cracks of the boxes with a cement composed of ¼ lb. of beeswax and ¾ lb. of rosin. It may be melted and kept at the right temperature by suspending a small tin dish over the chimney of a kerosene lamp. When the boxes are cemented and made tight, it saves the bees much labour, and they are able to get up the requisite heat for comb-building several days sooner.

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Reader.—Elihu Burritt has given us some particulars respecting John O'Groat. He says that in the reign of James IV., of Scotland, three brothers—Malcolm, Gavin, and John O'Groat—natives of Holland, came to the coast of Caithness, with a letter in Latin to that monarch, recommending them to the protection and countenance of his subjects thereabout. They got possession of a large district of land, and in process of time multiplied and prospered until they numbered eight different proprietors by the name of Groat. On one of the annual dinners, instituted to commemorate their arrival at Caithness, a dispute arose as to the right of precedency in taking the door and the head of the table. This waxed very serious, and threatened to break up these annual gatherings. But the wisdom and virtue of John prevented this rupture. He made a touching speech to them, soothing their angry spirits with an appeal to the common and precious memories of their native land, and to all their joint experiences in this. He entreated them to return to their homes quietly, and he would remedy the current difficulty at the next meeting. Won by his kindly spirit and words, they complied with his request. In the interval, John built a house expressly for the purpose, of an octagonal form, with eight doors and windows. He then placed a table of oak, of the same shape, in the middle, and when the next meeting took place he desired each head of the different Groat families to enter at his own door, and sit at the head of his own table. This happy and ingenious plan restored good feeling and a pleasant footing to the sensitive families, and gave to the good Dutchman's name an interest which it will carry with it for ever.

J. W. A.—The crushing load for flint glass equals about 23,483 lb. per square inch.

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